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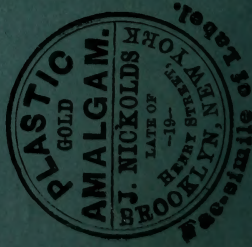
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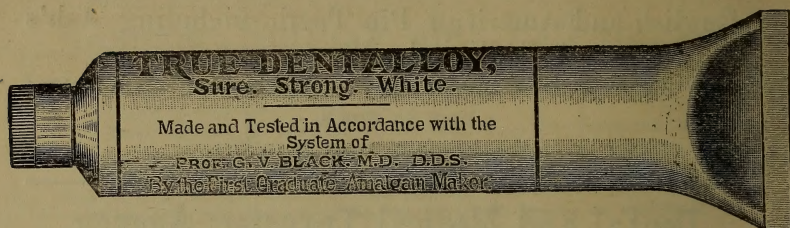
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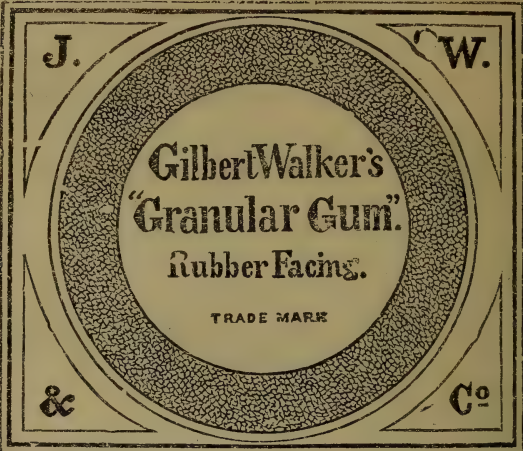
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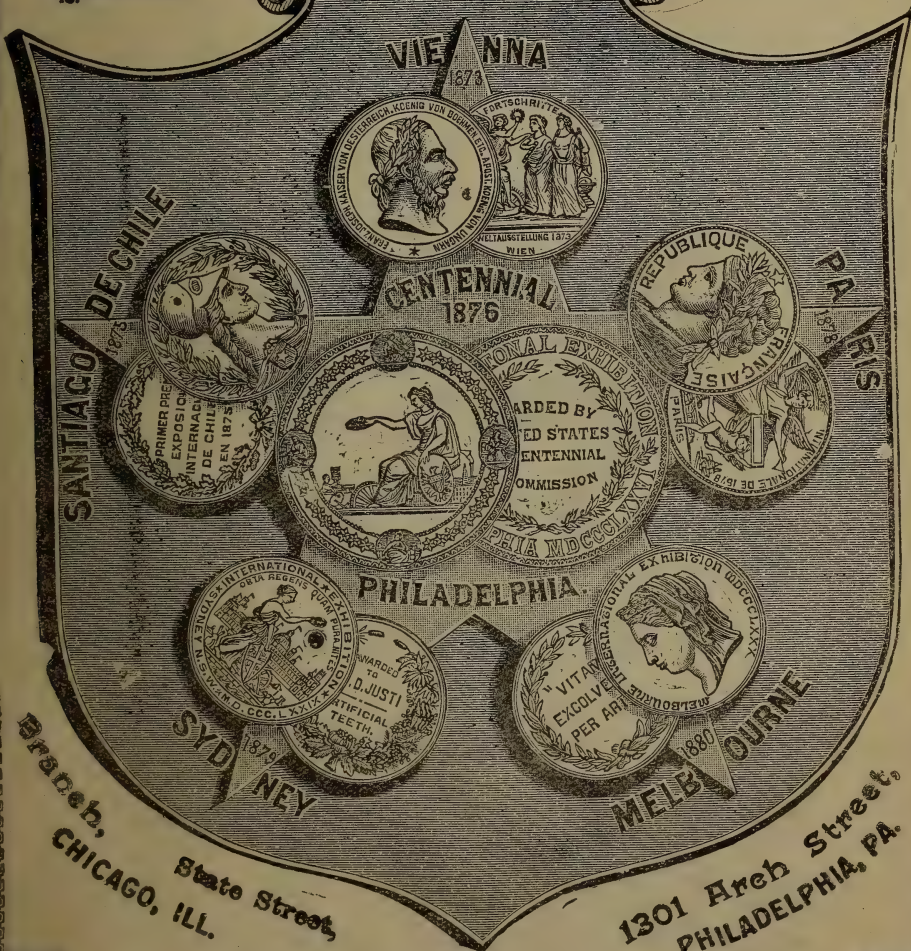
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British Journal of Dental Science

No. 794.

LONDON, FEB. 15, 1901.

VOL. XLIV.

ADDRESS TO STUDENTS.*

By JAMES MAUGHAN, M.D.

Gentlemen,—With heads bowed in reverence to the mighty dead we share the sorrow of a nation and a nation's friends the wide world over. Our Queen is dead, and there is not a heart amongst us but what feels the void with an aching sense of loss. For where was there such majesty as hers, whether we look at the dignity with which she filled the throne, or at the sympathy she could feel and express as a woman of tact, of grace and of great kindness of heart, or the example she showed to her people of purity, faith and courage. When was there politician so keen and strong, guiding statesmen and people silently and successfully through perilous straits? Who so faithful a lover and defender of Peace! If I understand the stuff that students are made of, if I gauge their character aright, I know that the Nation's sorrow, the World's sorrow, is theirs also. The pillar of our fabric has fallen. She who ruled us, she who wrought us, she who served us, is dead. And we pause awhile to remember how her nobility and character stand out peerless before the world and in

* Delivered to the Students' Society, National Dental Hospital.

history for all that is best in Mother, Wife, and Queen. Nor was her simple faith the least of her characteristics, drawn as it was from the purest spring and sustaining her in days of pathetic loneliness. The mother of her people is gone, but she has left behind her those priceless and imperishable ideals of life and character lest we forget.

When our sunset comes and the noiseless opening of other doors awaits our passing, will we present a record anything like equal to hers? I leave the question as it stands. Let us turn to our new ruler in a true spirit of allegiance as befits medicals and dentals alike, and cry out, Long live the King!

At the last meeting of your Students' Society, when the officers were elected for the current year, you made me your President. I thank you for that honour, and although my unfitness for this, the highest office, must be obvious from my lack of that special knowledge the cult of dentistry, yet it would have been perverse ingratitude to have resisted your invitation, especially when I remembered it had been offered me for so many years and was on this occasion, couched in such pressing terms. When you crowned all by a veritable blindness to my imperfections, I surrendered at discretion.

In taking up the reins of office I feel a certain satisfaction that I shall not be expected to exhibit that high dental knowledge and attainment that enabled my predecessors in office to maintain and enhance the traditions of, your Presidential Chair.

The scope of a Society such as this is large, and stimulates chiefly the search after truth in anatomy, physiology, and pathology, the fuller unfolding of the science and art of dental surgery and mechanics, and lastly the learning of those lessons in ethics that will guide your conduct towards yourselves, your patients, and your brother practitioners. I do not forget the *bon esprit* that is bound to pervade your

members here and knit them together with kindly bonds that last a lifetime. There is also the opportunity of debate with the confidence engendered thereby, and this may be of the very first importance to a man in after years. Occasions come when you can wrestle, throw your adversary and his arguments to the ground with startling dexterity, and the next moment help him not only to rise without feeling any humiliation, but rather an admiration for you as a man and a keen debater. The spirit of fair play so dear to the heart of every Britisher is, I am sure, a strong characteristic of a National Dental Student. These and other advantages undoubtedly hold a place in the unwritten charter of this Society.

In the choice of a subject, I revert to the first conception and select Dental Ethics. Some 15 months ago, I read before this Society a short paper on "Professional Etiquette," but this need not deter me from expanding the subject to-night.

Inheritance plays an undeniable part in a man's ethical nature, the influence of his environment from childhood onward is a strong factor in its evolution, and the sympathies and antipathies wrought into the fibre of a man, give him a definite trend of thought and action. Herbert Spencer says, that a man naturally seeks that which is agreeable to him, and it is a proved fact that he stands to get more real pleasure if he co-operates with others than if he hermetically seals himself up in a hermit's cell. Besides there is something higher in life than asceticism or self-gratification. You have the opportunity of co-operating together here and making this Society vigorous and full of vitality ; you also have the means of stimulating and strengthening the good fellowship and *kudos* of dental surgeons generally. Men are not mere flabby centipedes, crawling and grovelling in servile gutters, nor indeed proclaiming their humility on the housetops.

They have a backbone conferred upon them by the great Anatomist, and it behoves the dental surgeon to demonstrate the existence of such a gift. This backbone may be summed up in one word, duty ; and one of the first demands made upon you is that you respect the truth, honour and good name of your brother practitioner. This right should be carefully fed and fostered, and a generous explanation forthcoming the moment an unkind aspersion is made. An achievement like this, prompt and forceful, is impossible without a deeply ingrained desire and faculty for adjusting and perfecting kindly sentiments to one's brother, sentiments that should be beyond the reach of scorn and too jealously guarded for any ruthless vandalism to destroy.

Starting in life is an uphill business at first and may need all your strength of will and your very best and highest principles, but fidelity in the small beginnings will prove fitness for the bigger duties in the future, and after all, this uphill experience is one through which most of us have to pass, hard work, rough times, beautiful clean instruments, but no patients. There is one consolation, however, you are cultivating the virtue of patience. If you are wise you will seek the post of assistant and then learn many lessons that are never taught in your College and Hospital career, notwithstanding they are both momentous and profitable. If possible, you should serve assistantships in two or three separate dental practices.

The question of partnership may arise. I am a strong advocate of matrimony, but I like to see a man marry the right girl, and in partnership I like to see a man partnered to the right man ; still, a partnership can be dissolved one way or another, whereas marriage is a contract not easily broken. Therefore, before choosing a partner, get the best advice you can from a dental surgeon whose opinion is worth having, also go to a good solicitor, and even then, let your

partnership be a partnership on trial for a year or two. Better far to work single-handed and on modest lines than run in double harness with a man you can never respect.

It is correct to call on every qualified man living in your neighbourhood, and this you should do without delay. I ask you to consider two inestimable virtues. The first I would insist on is energy of body and mind. It must be obvious to all of you how many advantages a physically strong man possesses; choose your own method by all means, but energise those muscles till they have a tone and a vigour in them which speak for themselves. The cultivation of a strong mind involves the development of your intellect, your power to will and to won't, and the awakening of many graces of character hitherto lying unconscious in your hidden nature.

As regards the intellect, I would advise that you keep yourself well to the front in all dental matters, and also choose some useful intellectual hobby to while away spare moments. When you say Yes or No, let your patient see that your word is final and immovable. When he leaves your house his uppermost thought will be "That man knows his work. Knows what's right, and knows how to stick to it." As the varied and graceful facets of your personal character become more lustrous and apparent, may the charm of good taste mould and shape every word and action.

The second faculty I would consider is that you should go straight in three directions, toward yourself, toward your patients, and toward your fellow practitioners. To be true to the highest principles within you, to know that you have a good conscience, helps a man over many a thorny hedge in life.

Then you have to honour and to hand on unsullied the traditions of a high and noble profession, and this will call for

tact and judgment, watchfulness and care. You are expected to grace the profession you espouse and adorn it with dignity and worth, supporting all that tends to place it on a finer and firmer basis in the world's respect, and to elevate the tone, the harmony and good fellowship between dental surgeons generally.

Regarding your patients let your work be so good that it could not be better. Then let your word be your bond; if you have an appointment for a stopping, see that nothing interferes with it; if you have an extraction to make under gas, tell the patient what has been extracted, and if you have broken a tooth and propose waiting a few days before attempting to remove the rest of it, tell your patient so, and be perfectly frank in the matter. The man that never made a mistake, never made anything that was worth making. "Honour and shame from no condition rise, act well your part, there all the honour lies."

Your duty is to enrich the Science and advance the Art of dental surgery. Your keenness for work, your power of original research, your skill generally, are qualities lent to you and only held in trust: see that the best use is made of them.

If you get a chance of checking a fellow going in a downward direction, give him your plain opinion, courteously but firmly, try to save him from himself and his so-called friends.

When you operate under an anæsthetic, see that there is another person in the room who shall witness the operation from first to last. Listen to no scandal from a patient's lips, or if you do, put at once a charitable construction upon it. Never lose your temper in the presence of a patient, though at times the circumstances are very provoking. See to it that by no act or word you unsettle the faith of a man in his regular dentist. Such a course is unworthy of you, and the results are surprising and disagreeable sometimes. It is in

these ways that you obey the highest impulse of your nature, and so win for yourself the good name you deserve.

A few unpleasant things may await you, unkindnesses from surgeons and dental surgeons, openly and secretly, also ingratitude and caprice from patients when least expected or deserved. Under these circumstances, keep a brave heart, others have suffered before you, and will do so again, but cherish no ill-will against the sinner whoever he be. Convert him if you can into a loyal friend but allow no disappointment to worry you or to sour your disposition.

You are in your work entitled to the same consideration that you extend to your patients, viz., kindness, courtesy and respect. But you may not always get it, and frequently it will need strong self-control on your part when a man rudely rejects your advice and opinion, especially when it is the right advice and any other would be unwise or indeed utterly wrong.

If any differences arise between yourself and your brother practitioner, call upon him and remember that two or three words of mutual concession may make you fast friends for life. If a difficulty arises which threatens a lawsuit, try your utmost to arrange the matter by arbitration in the drawing-room of a dentist of high standing, whose discretion and judgment can be relied on.

People will come to you asking [you] to do work on the cheap or for nothing at all. If it is a genuine case that calls for charity, do it as far as you are able and let it be good work, but keep it secret for two reasons, [firstly because it is not necessary to publish every good thing you do in this world, and secondly, if folks get to hear of your kindness they may impose upon a too generous nature. If the case is not a genuine one, resist the claim most strenuously, remember and remind him that the "labourer is worthy of his hire."

As regards fees, a man may say while he is putting on his hat, "Oh, I was just going out without paying you your fee." You might reply, "Ah! you wouldn't like to do that, I am sure." Some people pay their dental surgeons because they like to, and others because they have to. It is your duty to make citizens good citizens, and those that pay their bills with pleasure are good citizens, but those that only pay when they have to, are the ones you must reform and make them good by necessity.

The temptation will come to some of you to join yourselves to advertising firms. You may protest feebly, but are at once met by some such arguments as these :—

Why worry about unprofessional matters, so-called discredit and disgrace ; you want money, and here is a fair and honest opportunity of earning it ; what is the good of being over-scrupulous, you cannot get on in the world if you are too particular : "Each man for himself, and the devil take the hindmost," is the motto for the man who wants to succeed.

Some firms may indeed approach you on a plea of philanthropy, or an ostensibly religious one, but give them one and all a wide berth.

These and other subtleties I warn you against with all the force I can. Once you yield to them you stamp yourself for life in the eyes of your brother practitioners, as well as on the sensitive film of your own conscience as a man of weak principle, yea, and capable of betraying the trusts of a high and noble profession.

Happy is the man who can honestly say he envies no one. And why shouldn't every one of you, when you are in the full swing of private practice, be able to say that jealousy is a word not entered in your vocabulary ?

Professional jealousy leads to envy, malice, hatred, and all uncharitableness. Never let it touch your character, but do all you can to win the most perfect esteem and good feeling

towards you, even as you extend it freely towards others.

Have I achieved my purpose, and pointed out to you the right path to follow when you find yourselves in ethical difficulties? viz., to go strong and keep straight. I know also too well there are many omissions in my paper, yet, if you will accept the broad principle of doing unto others as you would wish them to do unto you, and make that your motto through life, I shall not have failed in the pleasant task I set myself at the outset. And if, at the close of a long and honourable career, you can say that you have done no professional meanness or unkindness to any of your brethren, and if any word of mine has helped you in that direction, then to-night has not been in vain.

VALEDICTORY ADDRESS.*

By HERBERT J. RELPH, L.D.S., M.R.C.S., L.R.C.P.

Gentlemen,—I rise to fulfil one of the last duties that devolves upon me as your President for the year now so nearly ended. It is often hard to say “Good-bye,” sometimes very hard indeed, but it greatly depends upon the conditions under which that word is spoken.

If my farewell to you this evening as your President embraced a farewell to the National Dental Hospital, to its Students' Society, and the manifold concerns of vital interest and importance to its members, then, indeed, I scarce know how I could bring myself to utter it; I should feel, gentlemen, that I was severing myself from one of my greatest interests in life. But no such cruel fate awaits me.

* Delivered before the Students' Society, National Dental Hospital.

During the year that is past it has been my great honour and privilege to act as a sort of figure head to this Society, while you, gentlemen, have provided the thews and sinews, the vital energy to which alone is due the success that has attended the past session; and now that the time has come to say farewell to you as your President and to retire into comparative obscurity, I feel none of the sadness of parting, but rather the joy of reunion, for I shall once more enter your ranks where the real work is done that keeps a society like ours in a flourishing condition.

It is a well-known fact in the army that officers may be never so gallant, but when it comes to the pinch we stand or fall by the man who carries the gun. So again in the navy, it is often said that the next great naval engagement will be won or lost by the men in the stoke-hole.

So it is with a Society like ours. I wish I could fire our youngest, our most recent, our humblest member with a sense of his immense importance; if I could cause him to fully realize it I have no doubt I should risk making him a very conceited person, but I should be willing to risk that, for he has indeed something to be conceited of.

Neglecting for a moment the mere structural and material, what is the foundation of that Institution known as the National Dental Hospital and College? It is the individual student. Without him the Hospital in its present form would cease to exist; there would be no College, no Student's Society, no need of staff or lectures.

But this is only one aspect of the case. Without our Hospitals where would our students be? They would not be at all. The reputation, the honour of a hospital is contributed to by each individual student, but once established it belongs in its entirety to each student in return, and is one of the greatest treasures he possesses.

You, gentlemen, have chosen the National Dental Hospital

as your Alma Mater, why, does not concern us now, but you are certainly to be congratulated upon your choice.

I would impress upon you that the honour and reputation of the Hospital are identical with and inseparable from your own. When a student has passed through his hospital course, has obtained his qualification, and has gone out to practice his profession, what are his most important assets?

First, of course his qualifications are the most important asset he possesses, for without them he could not practice at all; but certainly his next most important possession is the prestige, the reflected glory of the Institution of which he was once a student. Its welfare is his welfare, any added laurels it may obtain are equivalent to personal honours for himself, while its good name cannot be impeached and his own go unsullied.

And it is most important to remember that the honour of a Hospital depends largely upon the past students as well as upon the present, and in one sense it depends more upon them, because there are so many more of them.

I think if gentlemen fully realized this aspect of the case, they would consider that their work at the Hospital had two phases:—1st, Obtaining their diplomas; 2nd, Maintaining and increasing the good name and honour of their Hospital. Present students can do both. Past students can devote all their energies to the second.

Now, gentlemen, let us suppose all our members, both present and past students, were stimulated with a desire to do everything in their power to maintain and increase the high reputation of their Hospital, and they would have very good cause to be eager to do so, if actuated solely by selfish motives, they might well ask how they should best set about it.

Now it seems to me they have not far to look,—there are limitless opportunities right here in our Students' Society.

We have seen that the students are one of the most important factors in the constitution of a Hospital: so again the Students' Society is one of the most important institutions of the Hospital, since it is the channel by which the energy and keenness of the students finds expression; it is therefore a sure guage of the amount of energy and keenness existing among the students.

We are not all constructed to shine in the same sphere, well, our Society provides scope for either social or literary talent, and in their way one is as important as the other.

Let us see what has been done during the past year. We have no hesitation in saying that the Society has not been content with maintaining its former high standard, but has indeed added to its laurels.

The meetings have been well attended, the papers have been of first class merit, and I am glad to say have all been read by present students, and the discussions have been interesting and profitable. Turning to the social side, there is nothing but success to record. The annual dinner was a record in every way, and those who had the good fortune to be present at the term end dinner, the smoking concert, and the river party must feel that the spirit of good fellowship so characteristic of all National men shows no sign of failing vitality, but quite the reverse.

But, gentlemen, there is one feature of the past year which I think constitutes a great advance, and upon which I think the Hospital and Students' Society is to be greatly congratulated, and that is the manner in which our new, Museum has been started. Here is scope for us all, present and past students alike, and I hope that all National men will bear our Museum in mind, and endeavour to make it in every way worthy of our Hospital.

And may I remind our new Members that the past history of our Society is a glorious one, its future depends largely

upon them, and as our numbers are comparatively small, individual effort counts for all the more.

Before resigning this chair, let me thank you, gentlemen, one and all, for the support and assistance you have given me, and especially the officers of the Society:—Mr. Mosely, our Secretary; Mr. Olver, our Treasurer; Mr. Stephenson our Librarian and Curator. I am sure our best thanks are due to these gentlemen for [the way in which they have devoted themselves to the interests of the Society, and I can assure you the duties that devolve upon these officers are no light ones.

I never felt so inclined to prolong a speech in all my life, for while I speak am I not still your President, but the word must be spoken:

Gentlemen, as your President I wish you farewell; may the Students' Society of the National Dental Hospital long continue its prosperous and useful career.

RECOGNITION OF THE DENTIST.

Dr. Barr says, "Men should certainly have respect for us, because the only way to get at a man is through his stomach, and it is impossible for his stomach to be properly got at unless he has his teeth. The ladies should certainly esteem us, for we preserve one of their chief elements of beauty. The dentist is more universally in demand than any other professional man, and forming my estimate of the profession on the scale of practical results, I think that in the matter of the 'greatest good to the greatest number,' dentistry is the peer of any."

British Journal of Dental Science.

LONDON, FEBRUARY 15, 1901.

CHLOROFORM IN DENTISTRY.

We have never lost an opportunity of condemning the use of chloroform as an anæsthetic in dental surgery, and the two cases we publish in the present issue once more point a moral in this connection. One case is from Newcastle on Tyne and the other from Australia, and they agree in many features. Both the victims were young women, both were examined before the operation by the medical men who administered the anæsthetic and were pronounced fit subjects for taking chloroform. Neither had taken a large quantity of the drug when respiration ceased, but in one case the patient turned very pale, pointing to heart failure, and in the other became cyanosed, pointing to respiratory failure. Artificial respiration was immediately resorted to in both cases, but with no effect. In the Australian case the inquest has been adjourned to admit further evidence, but in the Newcastle case the verdict has been delivered. It was "that death was due to chloroform, but that the chloroform was necessary and had been properly administered."

Whether the drug had been properly administered is not for us to say, but we strongly object to the statement that the administration of chloroform was necessary. We maintain that not only was it not necessary, but it is positively criminal to use it for dental operations. Chloroform should only be administered in the recumbent position, the sitting posture in the ordinary dental chair makes it much more liable to have fatal results. It is not as though there were no other

anæsthetic; ether is much safer, and nitrous oxide gas is practically perfectly safe. But the former is more troublesome to administer, and the latter gives only a short anæsthesia, so the easily administered but dangerous chloroform is preferred. But we should never forget that our first duty is for the welfare and safety of our patients, and extra time and trouble should not be considered when it is a question of, perhaps, life and death.

We cannot do better than quote a recent letter of Dr. F. Hewitt to the *Lancet*. He says:

"The chloroform problem has been solved both clinically and experimentally. Whilst there are numerous circumstances under which this anæsthetic is unquestionably preferable to all others, whilst skill in its administration almost abolishes its risks, whilst it is free from many of the disadvantages and even dangers of ether, the broad fact remains that in the hands of *the average medical man* the last-named anæsthetic is less likely to destroy life than chloroform. It is for this reason that the London anæsthetists very properly advise those whom they instruct to select ether in preference to chloroform for the ordinary run of surgical cases. The margin of safety with this anæsthetic is a wide one—a point of great importance when we bear in mind the fact that the surgeon of to-day expects his patient to be kept profoundly narcotised—*i.e., beyond the point at which corneal reflex disappears*. Now, what record has chloroform? The evidence against this anæsthetic is perfectly conclusive. I may refer to a somewhat interesting incident bearing upon the supposed safety of chloroform in the country north of the Tweed. A few years ago I had the honour to receive a deputation from an important Scotch hospital, in which, so far as my memory serves me no less than nine chloroform accidents had occurred in one year. I was asked to express an opinion as to the best form of ether inhaler. Colonel Lawrie would encourage the use of chloroform even for tooth extraction. But what is the record of this anæsthetic in dental surgery? Some years ago I thoroughly investigated this point, and I laid my results, in the form of a paper, before the British Dental Association. Curiously enough the annual meeting of this body was that year held in Edinburgh, and the facts and figures which I there brought forward were not disputed. I found that in fifteen years (1880-1894 inclusive) no less than 37 deaths had been recorded as having occurred in Great Britain in connection with anæsthesia for dental operations. Of these 14 occurred in Scotland (12 chloroform deaths);

21 in England and Wales, excluding London (15 chloroform deaths); and 2 in London (no chloroform deaths). Now, according to the census returns (average between 1881 and 1891) the population of Scotland was roughly 4,000,000; that of England and Wales (excluding London) was 23,250,000; and that of London was 4,250,000. From this it follows that during the fifteen years ending 1894 the dental anæsthetic death rate in Scotland was more than four times as great as that in England and Wales and about seven times as great as that in London. Had the rate in England and Wales been the same as in Scotland there would have been at our doors about 96 fatalities during this period; whereas as my figures show, there were only 23. The explanation is obvious; it is that the Scotch death rate was due to the use of chloroform. In London, where this anæsthetic is rarely if ever used in dental practice, the ratio of deaths to population was extremely small; in England and Wales (excluding London) where chloroform is used, but not to the extent which obtains in Scotland, the ratio was considerably higher; and in Scotland itself—where chloroform is the routine anæsthetic, at all events for all major dental operations—the ratio was very much higher. If it were necessary further to strengthen the above results one might add that it is quite possible, if not probable, that many more deaths than those of which I was able to find records actually took place in Scotland during the 15 years referred to, for there are, as is well known, no coroner's inquests in Scotland, so that chloroform accidents often escape notice."

These facts cannot be too widely known, and we hope that their diffusion will render these painful cases less frequent in the future.

THE following true incident is taken from the *Edinburgh Dental Student*:—"Within one of the many gorges dissecting the slopes of a mountain, which rises up precipitously from the outskirts of one of our colonial towns, the remains of a body were discovered by a party of flower-gatherers. Lying half suspended in the branches of an overhanging tree, it was evident that it had fallen from the rocks above. It was quite unrecognisable, and not a clue remained to reveal its identity to the authorities who were shortly on the spot. In a land where towns are only mere punctuation marks in the great book of civilization, it is only too possible for a man

to slip unnoticed and unclaimed from his scattered social circle, and his absence to be noted with nothing more than a nine days' wondering speculation as to his whereabouts. So it was here. This human remnant was like to have the last services rendered him, with his history and its mystery covered over for ever by the turf that filled in his resting place. But there was one official somewhat shrewder than the rest. Perhaps he was a Scotch importation. He discovered a small metal plate in the mouth, and on this was punched a number—1809. Here was a clue, and a very definite one. The dentists of the town were interviewed, and the plate immediately recognised by one of the profession. The number was referred to in his books, and the missing man became no longer a mystery. There is always a blessing in certainty. His bereaved family were acquainted with his fate, and spared the further suspense which his absence had caused; and the Insurance Company, who had postponed payment until proof of the death of the missing man was forthcoming, now handed over the premium. All which result grew out of the fact that a dentist systematically punched numbers into his metal plates.”

TIME-LIMIT OF SERVICE.—One of the laws governing the Birkenhead Borough Hospital lays down that no honorary physician, surgeon, or dentist shall be re-elected oftener than to complete a period of fifteen years' service from the date of his appointment. Under the operation of this law Mr. W. Shillinglaw, who has rendered valuable services to the institution as honorary dentist for the full term now retires.

DEATH FROM NITROUS OXIDE GAS ANÆSTHESIA.—In the *Louisville Monthly Journal of Medicine and Surgery* for September, 1900, is reported by Dr. Evans the death of a female child, aged five years, during an operation under nitrous oxide for adenoid growths of the naso-pharynx. The

child was rather badly nourished, and there was a history of measles thirty days before she was seen by Dr. Evans. She appeared to be rather frightened, and cried a little when placed in an ordinary dental chair and the mouth-prop was inserted. After two or three inhalations the gag slipped out of the mouth. The anæsthetic was stopped, the gag replaced, the child being semi-conscious and not at all cyanotic. After two or three more inhalations the anæsthetist announced that she was ready for operation. "The first pass I made with the curette I discovered that there was absolutely no hæmorrhage, and I now believe that the child was dead at that time." The child was at once inverted and artificial respiration performed. Only ninety seconds elapsed between the first inhalation and the apparent death of the child. The finger was passed into the larynx and between the vocal cords, which were relaxed. No obstruction was found. There was no sign of cardiac action. The pupils were widely dilated. All efforts at resuscitation were useless, including inflation of the lungs with oxygen. Dr. Evans believes that death was due to cardiac paralysis, that the child had had diphtheria following the attack of measles, and that this may account for the cardiac paralysis which followed so soon after the first administration of the gas. The amount of gas used was about $3\frac{1}{2}$ gallons.

HULL BOARD OF GUARDIANS.—The Governor gave notice of motion to appoint Mr. Bergemann, the honorary dental surgeon to the Board, permanent dental surgeon, at a salary of thirty guineas per annum. This step, the Governor explained, was necessary to comply with the requirements of the Local Government Board.

DENTISTS WANTED FOR THE RAND.—All refugee dentists who are desirous of returning to the Rand have been requested to communicate with the local Outlander Committee.

THE ANNUAL DINNER of the Guy's Hospital Dental Society, which was fixed for February 9th at the Hotel Cecil, has, in consequence of the death of the Queen, been postponed until Saturday, March 23rd.

JACK OF ALL TRADES.—Mr. Registrar Brougham had before him in the Bankruptcy Court, recently, the case of Henry Pearce. It appeared from the official receiver's report that the debtor had formerly traded as a metal broker, latterly in partnership at 150, Leadenhall Street, E.C., under the style of Pearce, Sharpe and Co. He attributed his failure to losses by speculations in tin and copper; also in connection with the British and Foreign Dental Association, and on a contract for the purchase of a public-house in the Strand, and to other causes. The accounts showed ranking liabilities £10,735, and assets estimated at £5,810.

SAD DEATH OF A WOLVERHAMPTON DENTIST.—The dead body of Mr. C. H. French, dentist, was found in his work-room in King Street, Wolverhampton, recently, and it was removed to the mortuary. The deceased gentleman had been in business for about forty years, and formerly practised in Queen Street and Lichfield Street. Owing to ill-health and other causes his practice had fallen off, and for a short period he was an inmate of the infirmary at the union. Of late he had resided at his rooms in King Street. He leaves a widow and family.

ONE FARTHING FOR LOST TEETH.—Mr. Lewis Stroud, a solicitor and amateur cyclist, has been awarded one farthing damages for the loss of several teeth, which he alleges were knocked out by a ticket collector at the Crystal Palace Station in September last.

THE TREATMENT OF EMPYEMA OF THE MAXILLARY ANTRUM (*Berliner Klinische Wochenschrift*, August 27, 1900).—Max Halle in a thoughtful article on this subject advocates that it should be treated by an opening through the lower nasal fossa, as was first suggested by Krause. He describes his method of operation as follows :—Cocainization, by a 10 to 15 per cent. solution, of the mucous membrane of the nasal fossa at the lower and anterior part. After this has become insensitive, a Krause trochar is passed into the nostril close to the septum, but with its point directed outwards and somewhat downwards, so that the opening through the external wall of the nasal fossa will be made near the bottom of the antrum. The point of the instrument is forced through the bone by a gradual firm pressure, together with some rotatory movement, and after it has penetrated into the substance of the bone, it is pushed inwards until the hilt of the trochar enters the nose. The advantages claimed for this method are that the operation is easy, and can be carried out without general anæsthesia and in a comparatively short space of time. It further avoids abnormal communication with the mouth, together with its attendant disagreeable taste of pus and possibly iodoform. Healing is also said to be quicker, and, what is perhaps most important of all, the results are more permanent. The author considers that this method should be tried, at any rate firstly, in every case of empyema of the antrum. Should recovery not follow the treatment, as may occur in a certain small proportion of cases, an opening through the canine fossa is indicated. Apertures made through the alveolar process, save immediately after the extraction of a carious tooth, are entirely unjustifiable.

UNQUALIFIED DENTAL ASSISTANTS.—A correspondent writes to the *British Medical Journal* :—"Does the resolution passed by the General Medical Council on December 1st, 1898, which runs as follows : 'Any registered medical practitioner who knowingly and wilfully assists a person who is

not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect,' mean that registered dentists are liable as well as registered medical practitioners? In Ireland some dentists actually employ a number of unqualified assistants and send them round country towns and villages to represent them on market days, without ever putting in an appearance themselves."

The *Journal* replies: "The resolution quoted was passed in response to a communication sent up by one of the Branches of the British Medical Association, mentioning the prevalence of, and condemning, the practice referred to. It seems not to be precisely applicable to a dentist employing unqualified assistants in a branch practice, but complaints of this have been heard by the Council, and have been dealt with on similar lines to analogous medical cases. We are not aware that the name of any dentist has, up to the present time, been removed from the *Register* for covering alone, but a dentist who employed an unqualified assistant to perform operations otherwise than under his immediate *bona fide* personal supervision would be liable to be found guilty of infamous conduct in a professional respect, and in one case the charge was held to have been proved, and judgment was postponed till the next session. Had the dentist in question not then produced evidence that he had at once discontinued the practice it is probable his name would have been removed."

ACTION AGAINST "SCOTT RUSSELL."—*The Chemist and Druggist* says:—"The action under the Dentists' Act brought against Mr. Trick, who seems to have been trading quite legitimately under the assumed name of Scott Russell, was surely a mere waste of public time. No offence was disclosed, for it was not seriously contended that a registered person had not the right to assume a trading name. The

British Dental Association was informed of the facts, and as a taxpayer I appeal to magistrates not to permit this egregious body to use our costly courts as arenas for the parade of its frivolous complaints. But there is an interesting point in connection with this prosecution which is not brought out in the report. Section 12 of the Dentists' Act orders that "The General Registrar shall from time to time insert in the dentists' register any alteration which may come to his knowledge in the name or address of any person registered." There is no similar provision in either the Medical Act or the Pharmacy Act, but the section quoted clearly anticipates in the case of dentists such alteration of name as Mr. Trick chose to adopt. More than that, it throws the onus of correcting the register not on Mr. Trick, but on the Registrar. So that it was the latter, if anybody, who ought to have been prosecuted." W. H. Trick, who said he was "Scott Russell," was *not* on the Dentists' Register, though we believe he has registered since, as he holds the L.D.S. Eng. diploma.

ADDITIONAL POWERS FOR THE GENERAL MEDICAL COUNCIL.—The General Medical Council are seeking additional powers for dealing with professional misconduct. They have already submitted a proposal the effect of which would be to substantially extend to medical practitioners the law which is already in force in regard to dentists under the Dentists' Act. At present if a registered medical practitioner is convicted of a crime or is found guilty of infamous professional conduct the Council have jurisdiction to erase the name from the Medical Register, but there is no power to suspend for a limited period. What is desired is the privilege possessed by the Law Society and the High Court in relation to solicitors that of suspension from practice for a defined period. It would then be possible to meet cases which are not of sufficient gravity to require the severe punishment of total deprivation of the right to practise legally. Another alteration of the law suggested is that the medical authorities who grant

diplomas should also have the power to withdraw them for unprofessional conduct. It sometimes happens that a man is taken off the Medical Register, but is able to continue to use his medical diploma. Here again temporary suspension instead of total disqualification would frequently be a fit punishment. Finally, the scheme contemplates that the General Medical Council shall be given the fines and penalties recovered before magistrates from unqualified and unregistered persons falsely practising as medical men. This, it is declared, was the intention of the Medical Acts, but under the Police Courts Acts the Receiver of Police has claimed the money instead.

Dr. WILSON in the *Cosmos* says: "There are very few men who are skilful enough to produce hand-carved teeth which can compare with the manufactured work we have at the present time. Of course in the olden time everything was carved. The trouble is not with the manufacturer, because he produces the typical forms of teeth, and that is what is given us. We are to take these typical forms and individualize the teeth by grinding, and if necessary staining with the mineral stains and burning them in so as to reproduce the effects we wish. We must first have a foundation upon which to work, and that foundation is given us by the manufacturer. It is simply impossible for any man to take a piece of china or porcelain and carve it into shape, bake it and know what the colour or exact size will be if he depends upon hand work, because we know that porcelain will shrink and we know that the colour will change according to the amount of heat applied. But when we take the foundation given us by the manufacturer in the typical form of the tooth and individualize it we can produce a very successful result.

Abstracts of British & Foreign Journals

THE SHEEP'S TEETH.

By "St. Magnus."

A correspondent asks: At what age (in months) does a sheep cut the first two teeth, and be termed a 2-tooth? At what age (in months) does a sheep cut the second two teeth, when he would be termed a 4-tooth? At what age (in months) does a sheep cut the third two teeth, on which he is called a 6-tooth? At what age (in months) does a sheep cut the last two teeth, and become an 8-tooth?—I have more than once answered these questions, or something very like them, and although I give the stereotyped answers which have been given time and again as to the age when sheep are termed 2-toothed, 4-toothed, 6-toothed, and 8-toothed, still some people seem to be in a fog on the subject, and this notwithstanding the fact that I have always quoted the highest authorities. Of course, it must be understood that, like everything mundane, the ages at which sheep cut their teeth in exceptional cases are likely to vary, in sympathy with certain causes, as to whether the animal is an early or late lamb, whether it is well or ill fed, and whether it is of a robust or weakly constitution. Breed and climate also, perhaps, have an influence on the ages at which sheep get their teeth. Mr. Culley, a well-known English authority, mentions a case of a friend of his. "Mr. Charge, of Cleasby, a few years ago," he says, "showed me a shearing or shearling tup (that is, after the first shearing, at 15 months old, when he loses the name of hog), at Richmond, in Yorkshire, for the premium given by the agricultural society there, which had six broad teeth, in consequence of which the judges rejected Mr. Charge's tup, though confessedly the best sheep, because they believed him to be more than a shearing. However, Mr. Charge afterwards proved that his tup was no more than a shearing."

Youatt describes the teething and teeth of sheep as follows: "The mouth of the lamb newly dropped is either

without incisor teeth, or it has two. The teeth rapidly succeed each other, and before the animal is a month old, he has the whole of the eight. They continue to grow with his mouth until he is about 14 or 16 months old. Then, the same process goes on, and the two central teeth are shed, the broad teeth appear, and attain their full growth when the sheep is two years old. In examining a flock of sheep, however, there will often be very considerable difference in the teeth of hogs, or the one-shears; in some measure, to be accounted for by a difference in the time of lambing, and likewise by the general health and vigour of the animal. There will also be a material difference in different flocks, attributable to the good or bad keep which they have had. Those fed on good land, or otherwise well kept, will take the start of others, which have been half starved, and renew their teeth some months sooner than these." There are, however, exceptions to this rule, and cases have been known where animals that should have shown two permanent broad teeth had none. There are still other irregularities in the time of renewing the teeth, which (says Youatt) cannot be accounted for by any known circumstances relating to the breed or keep of the sheep. "Between two and three years old, the next two incisors are shed, and when the sheep is actually three years old, the four central teeth are fully grown. At four years old, he has six teeth fully grown, and at five years old the teeth are perfectly developed; and he is called an eight-tooth. The careless examiner may be sometimes deceived with regard to the four-year-old mouth. He will see the teeth perfectly developed, no diminutive ones at the sides, and the mouth apparently full; and then, without giving himself the trouble of counting the teeth, he will conclude that the sheep is five years old. A process of displacement, as well as of diminution, has taken place here—the remaining outsids milk teeth are not only shrunk to less than a fourth part of their original size, but the four-year-old teeth have grown before them, and perfectly conceal them, unless the mouth is completely opened. After the permanent teeth have all appeared, there is no criterion as to the age of the sheep."

This is the dictum laid down by both Culley and Youatt as to the teething of sheep; that is, a sheep is reckoned a two-tooth at the age of 2 years, a four-tooth at the age of 3 years, a six-tooth at the age of 4 years, and an eight-tooth at the age of 5 years, when it is reckoned full mouthed. As pointed

out by the two authors named, this rule is not, however, an infallible guide, as sometimes the broad teeth are not fully developed until two or three months after the sheep has passed the respective ages of 2, 3, or 4 yearly limit. In certain cases again the teeth may be fully developed before it arrives at the respective ages mentioned. Some articles have recently appeared in the *London Field* which amply verify the rule laid down by Culley and Youatt, and advise the examination of the molar teeth in conjunction with the incisors in fixing the age of sheep, particularly so in the case of the two first broad teeth.—*Town and Country Journal, N.S. W.*

PYORRHEA ALVEOLARIS.

In a paper read by Dr. Cook, upon the Bacteriological Study of Pyorrhea Alveolaris, before the International Dental Congress at Paris on August 8th, 1900, reported in the *Dental Cosmos* of November last, that author, in his introductory remarks, said that space would not permit of a full consideration of the bacteriological investigations of pyorrhea alveolaris. Malassez, Galippe, Whittles, and W. D. Miller had at various times investigated the bacteriological side of the question, but with varying and somewhat contradictory results. They all, however, came to the same conclusion,—that it is of bacterial origin and local in its effects.

Some three years ago he had made quite a number of cultures from pockets around teeth affected with pyorrhea alveolaris, and was attracted by the appearance of a certain organism seemingly not described by previous investigators, with the exception of Galippe, who described one somewhat similar. The work was then dropped. About a year ago Dr. W. J. Younger asked him to investigate the organism still further in connection with some work he was doing on the same subject, and which he submitted to the Institute of Stomatology in New York. This work was necessarily hurried and superficial, but was the starting point of a more thorough investigation, the results of which Cook now submitted to the Congress.

Cultures obtained from the pus contained in the pockets showed the ordinary pus-forming bacteria, together with, now and then, old and elongated forms of the organism in question. The difficulty of obtaining the organism in pure cultures and in an active state was that in the old deposits the germ was only found in a degenerated form, but down deep in the pocket, where the deposits were in an active state of formation, he was able to obtain the organism in nearly pure cultures and in undegenerated forms.

These deposits in which the germs are active are rather soft, grayish masses, and are rather easily crushed between two slides. Slides made from the old deposits and stained with the ordinary aniline dyes, also by Gram's method, showed a conglomerate appearance, varying from a coccus form to long leptothrix threads. Generally it assumed a bacillary form of varying length, just as though the leptothrix threads were broken up. These bacilli assumed a granular, conidia-like form, which showed a tendency to break up into cocci-like masses. They also showed a tendency to assume a branched thread-like form, such as is sometimes seen in the tubercle bacilli and more typically in actinomyces. In fact, Hektoen's words in his description of actinomyces cultures might be used which, he says, are formed of cocci and rod shaped masses and branching threads. The cocci forms and granules resemble very much the conidia as seen in many of the fungi. It was found difficult to secure cultures from the old deposits. Slides made from the deep pockets and from the lower deposits showed a bacillary form predominating. Cultures made from these parts grew readily in the ordinary culture-media, but showed a great variation in their morphological appearance. In the gelatine the cocci form predominated. On gelatine plate cultures the colonies grew for the first twenty-four hours, after which they stopped growing and seemingly dried up. On agar-agar the bacillary form predominated, and in colonies showed a light yellowish appearance. In from three to five days they stopped growing and the bacilli assumed a diptheroid form, seeming to pass into diplococci. This phenomenon is nothing more than spore formation.

A noteworthy feature is that on the internal administration of potassium iodide, and less so of mercury, the organism quickly disappears from the affected teeth. That the iodides have a marked curative action on certain diseases of fungus

origin has been fully demonstrated ; especially is this true regarding actinomyces.

Conclusions.—This micro-organism, Cook believes is as widely distributed in nature as the ray fungus and many others of its class. Also it may inhabit the mouth of an individual and lead a purely saprophytic life, but under certain conditions it is capable of assuming a pathogenic nature. This is in a measure true of all disease producing bacteria.

In nature the author has found a bacterium possessing a characteristic individuality, and he has more or less thoroughly traced out its life history, studied its mode of life as grown in the different food-media, as well as its effects upon animals and in the mouths of individuals where it accompanied no pathological process as well as in those suffering from pyorrhea alveolaris. It seems to accompany all cases of pyorrhea alveolaris, especially down deep in the pockets where the deposits were in an active state of formation. It has also been noticed that when the deposits were removed and the pockets disinfected, especially along with the internal administration of potassium iodide, the disease process ceased, and a reparative process began. If after the pockets had been so treated and none of the germs remained the affected teeth were reinoculated with the germ, the disease went on as before, whereas without re-inoculation the disease tended toward recovery.—*The Medical Times.*

GOLD IN TEETH.

Taking the population of the United Kingdom in round numbers as forty millions and then reducing these to units, that is forty persons, twenty-five per cent. of these, over twenty-five years of age—or seven in forty, allowing for difference in age—have passed through the hands of dentists. In other words, that about seven in every forty persons have had some of their teeth stopped, or have had artificial teeth inserted in the place of lost natural ones to protect and preserve their gateway of life.

Now, taking one practitioner with another, the poor man's dentist and the exclusive and fashionable professional man, with gilded chambers in the West End, the average number of patients putting themselves in the hands of dental practitioners and adopting vulcanite, or one of the lighter metals as the base of their artificial teeth fittings, is perhaps five in the seven persons, the remaining two, being better able to afford it, choosing the more expensive base of gold.

Of course, tons of vulcanite are used in dental work as against hundredweights only of the more precious metals which are pressed into the dental service, such as, for instance, platinum, silver, amalgam or other alloy, and gold.

Vulcanite is cheap in a sense, whilst the use of any one of the precious metals runs your bill up to a pretty high figure, and when it is gold your bill is the highest of all, very often touching a figure you would hardly credit.

To wit, to digress for a moment, one old lady, the mother of the proprietor of a leading daily newspaper, paid her dentist £350 for her gold set, and we learn that it is no uncommon thing for a fashionable dentist to be paid from fifty to one hundred and fifty guineas for a gold case.

At the present moment of writing, it appears that platinum is dearer than gold, but this is a market fluctuation which may change back again to what it used to do, namely, £2 per ounce; it now stands at £4, the increase being caused by the big demand for this metal owing to the development of electrical enterprises, more particularly in connection with the building of "twopenny tubes."

Giving to gold the prerogative allowed to it by popular favour, and regarding it as the leading metal, comes the crucial question. What is the total value of gold now being carried in the mouths of people moving about in the United Kingdom?

Accepting the figures herein quoted as the basis of calculation, giving us two persons in seven who adopt gold fittings, or who have their teeth stopped with gold, then we arrive at the fact that two million persons of the entire population over twenty-five years of age, in round numbers, have gold in their mouths as we write, and for which each has paid, striking a low average in face of the big prices paid the fashionable dentists by the British aristocracy, seven pounds sterling, which, therefore, represents a total sum of £14,000,000; and this is fixed in the mouths of the people

of this country. This value, of course, includes professional attendance.

Now for the actual value. For every £200 paid by a dentist for his gold for dental work he gets back £600, that is, he makes two-thirds profit, and the skilful man deserves it; therefore, the actual value of the gold carried in the mouths of people who have passed the dental chair stands at the appalling figure of nearly £5,000,000 sterling.

The price usually paid by dentists for their gold for dental plates comes out at about £3 12s. an ounce, but that for stopping costs the professional man from £6 15s. to £8 8s. an ounce.

We will strike a mean and say that £5 an ounce is given all round for gold, then we arrive at the astonishing fact, going again upon all the figures given, that no less a weight than 834 cwt. of gold is now being carried about in the mouths of our fellow subjects in this country.

The gold used for dental plates is generally of the eighteen carat quality, and in a complete upper or lower set the weight is about one ounce and a quarter, but the heaviest amount of gold will be carried in a complete piece of bridgework in which, at times, as much as three or four ounces of gold are found.

To refer to platinum again. We have seen that at the moment of writing it is dearer than eighteen carat gold, and we have suggested that the price may not stick where it is.

This suggestion is based on the fact that some years ago this same metal rose to ninety shillings from thirty-six, and it then dropped again to about forty shillings an ounce.

Of course as you cannot stop decayed teeth with platinum—only good gold should be used in the opinion of many dentists for this kind of work—and as therefore gold-filling embraces half the work, or at any rate, a very good third, of dental surgery, the onlooker will not express surprise on being told that more gold than platinum is used in the various dental processes.

The great difference between the two metals in the matter of quantity is accounted for by the fact that gold enters into almost all departments of the dental surgeon. Besides being used for filling and for dental plates to cover part of the roof of the mouth, it is also used in great quantities for bridges and crowns and for bands and wires supporting vulcanite sets.—*Answers.*

ANTRAL CASES.

By Mr. MAYO COLLIER, F.R.C.S.

I have had the handling of quite a number of cases of chronic antral disease which had already been operated on and were wearing drains in the site of one or other tooth. The daily washing of the cavity had to be continued, much to the annoyance of the patient. The wash in most cases could be forced into the nose and in some cases passed quite easily. It was quite a common experience in the old days, before the proper method of treating the frontal sinus was known, for a discharge to continue from this cavity for one, two, or more years without diminishing. As soon as the practice was established of opening the frontal sinus from the front and freely restoring its natural communication with the nose the convalescence was measured by days and not by years. In the maxillary sinus a free opening of that side of the nose associated with an enlargement of the ostium maxillare will go a long way in assisting you to cure the disease and to render recurrence impossible. In the case of the daughter of an English medical man who was brought to me with a large abscess of the antrum bulging into the nose a considerable opening into the antrum and in the neighbourhood of the ostium maxillare was sufficient to cure the disease without a counter opening in the region of the teeth. The nose is the natural and proper outlet for all these discharges and the warm, moistened and filtered air as supplied by the nose is their natural and proper contents.

And now I come to a subject the importance of which cannot be over-rated. It is the association of chronic turbinal distension and hypertrophy with, in many cases, a state of things as exemplified by these casts. The association of mouth-breathing with high palate, unsymmetrical upper jaw, prominent nose, open mouth, and thin, flattened face is a constant one. On attempting to reason this subject out at a meeting of the Odontological Society I was met by a perfect hurricane of adverse criticism. I was told that all these cases were hereditary and there was nothing more to be said on the subject. It reminded me very much of the reception a dog gets in the streets of Constantinople if he happens to leave his own street and wander to another. Whatever

meaning the members of the society attached to the term "heredity" they are welcome to, but it at all events does not mean that any given person with a facies such as I have indicated must of necessity be born with the same. I am old enough now to have seen many instances of children with beautifully formed faces, symmetrical dental arches, and perfect nasal respiration, become in after life quite altered. The upper arch has become so distorted that the molar teeth on each side are approximated so that the teeth of the upper jaw rest only by their edges on the teeth of the lower jaw, whereas the incisor teeth of the upper jaw protrude forwards and hang in front of the incisor teeth of the lower jaw. The whole of the upper jaw may become atrophied, the nasal respiration almost entirely suspended, and the palate highly arched and V-shaped, and the mouth constantly open. Why this change? Was it the evolution of the hereditary tendency which in these cases did not exist, the parents in all these instances having remarkably well-formed upper jaws and being particularly good-looking? I can produce the same effect on any young animal chosen indiscriminately by blocking his nose for a long time with cotton-wool. Is it unreasonable to suggest that turbinal atony and hypertrophy in the young and growing subject will act as the piece of wool in the nose of the young animal.

From what I have said as to the alteration in the air pressure inside the nose consequent on anterior occlusion you will gather that a small increase of pressure from without constantly applied on the walls of the nasal box is capable of pushing up the palate, disarranging the upper mandibular arch, and causing general atrophy and an undeveloped condition of the whole upper jaw. Moreover, if these cases are taken in an early stage and the nasal respiration is restored the constant stream of air passing through the nose moulds and expands the upper maxilla and in time the greater part of the deformity will disappear.

One point more. It is a matter of common knowledge that children affected with post-nasal growths or enlarged tonsils or both, often become pale, thin, anæmic, listless, and generally out of sorts. I myself have never heard a satisfactory explanation offered for this associated condition. I say "associated," for the association is fairly constant. In grown-up persons who suffer from post-nasal catarrh and pharyngitis and chronic laryngeal catarrh I have noticed two very prominent symptoms—chronic flatulent dyspepsia

and a suffused and at the same time leaden appearance of the complexion. The skin of the face becomes thick, heavy and patchy and often the vessels of the conjunctiva are permanently dilated. I take it that in both cases a large quantity of unhealthy mucus finds its way into the stomach. This in the child probably interferes with nutrition and in the grown up person is the cause of the dyspepsia. The want of proper oxidation at night is the probable cause of the altered and damaged complexion. Whatever be the explanation it is our common experience that if the nasal respiration be restored and the nose and throat trouble cured in both cases nutrition improves and the patient is speedily restored to health.—*Lancet.*

THE MASTICATORY MOVEMENTS OF THE LOWER JAW AND THE RULES FOR PROTHESIS DEDUCIBLE THEREFROM.

By Professor Dr. FR. HESSE, Leipsic, Germany.

The articulator plays an important *role* in the construction of artificial dentures, inasmuch as it enables us to set up the artificial teeth outside the mouth in accordance with anatomical laws and the special conditions present in any given case. It serves to meet two essential requirements which are demanded of the artificial substitute,—namely, esthetic appearance, as well as utility for the function of mastication. The instruments in use until the introduction of Bonwill's articulator, and which are yet largely, even almost exclusively employed, fulfil at the most only the first of the above requirements; they give no hint in advance as to the functional utility of the substitute, rather do they premise great skill in their employment and the happy chance that the dentist may succeed in placing the teeth in accordance with the anatomical conditions of the mouth. They are all pure hinge joints, simply modelled upon the position of rest taken

by the lower jaw at the time when both condyles rest in the glenoid fossæ of the temporal bones and the masticatory surfaces of teeth are in apposition with those of the antagonizing jaw.

This position of the teeth can be imitated by the old articulators in such fashion that the substitute can be made to take the same position when the mouth is closed. It does not follow, however, that in this way the artificial teeth will be so placed as to permit the proper movements of the lower jaw with reference to the upper. This takes place only in that movement in which the lower dental arch separates from the upper, whereby collision of the two arches is avoided; that is especially in opening and closing the mouth.

In order to see that this is inadequate for the movements of mastication, it is necessary to consider the masticatory movements of the lower jaw.

The reduction of the food into small bits is accomplished in the first instance by the pressure of the lower molars against the upper. We find, accordingly, the molars provided with broad grinding surfaces, and a series of muscles whose function is to bring the lower jaw into contact with the upper. These muscles surpass by far all the other muscles of the jaw in number and power. This movement from below upward is supplemented in man and all mammals which masticate their food by a second motion from right to left, termed "grinding movement." It is for the carrying out of this motion that the articulation of the jaw is not limited to the glenoid cavity of the temporal bone, but extends to the *eminentia articularis*. If you ask yourselves what is the nature of this movement, you will be in a quandary to give a clear reply. This at least has been my experience in the case of those I have thus far questioned upon the point. The means at our command for solving the question are observation of the movements upon the skull and during life. Plastic substances have also been placed between the arches, and the attempt has been made to deduce an explanation of the movement from the changes observed in the mass through mastication. These methods, are, however, inadequate, for the phenomena are too complicated to be explained in any such way. Nevertheless, they were of service in proving to me that it is necessary to put the question in another manner. One must not inquire what movement the lower jaw as a whole makes during mastication, but rather that of a single point of the same.

This can be most easily discovered by tracing the path followed by a single point of the lower jaw.

Inasmuch as a perfect dental arch is not adapted for such observations, I have chosen a jaw in which some teeth were wanting. In the intervals I placed the end of a lead pencil in a vertical position, so that it impinged upon the upper teeth.

In order to obtain a better transcription surface than that offered by the enamel of the upper teeth, I covered the antagonizing teeth of the upper jaw with a layer of hard rubber. Both parts of the apparatus being fastened in the mouth, the jaw closed, and the grinding movements carried on in short excursions, a black stroke is found to have been made upon the rubber, extending almost in a straight line from the gingival to the buccal margin, with a slight concavity directed backward. The inner end of the line is the point where the point of the pencil touches the masticating surface of the upper teeth when the jaw is at rest. No matter how often the movement is repeated, no marking, save the line noted appears.

I perceived at once that this line failed to show the entire path described by the point in question of the lower jaw, but only that portion becomes visible which is described so long as the two jaws touch each other. If the grinding motion becomes so decided that the condyle of the side under observation passes over to its *eminentia articularis*, the pencil point separates from the upper jaw and no longer records its path of movement, not touching the rubber plate. I therefore attached the pencil to a small spring, by which it was lifted up as the lower jaw was depressed, and I thus obtained a new record (line). This commences at the same point as the former, but extends thence forward and inward. The entire path which the point of the pencil can describe during the widest lateral excursions of the lower jaw (to right and left) is therefore an obtuse angle, with the opening directed forward and outward.

The transverse side of this angle represents the path traversed by the point of the lower jaw when the latter is moving laterally, the head of the bone remaining within the glenoid cavity, while the lateral side of the angle is described when the head passes over to the *eminentia articularis*.

What is the reason that the lateral side of this angle is alone of significance in the act of mastication?

In the first place, it is only during this part of the move-

ment that the lower and upper jaws remain in contact, while during the other portion the jaws separate,—that is, leave an interspace,—checking the division of the food. Accordingly, the grinding movement is only effective during simultaneous contraction of the muscles of mastication of the side in question,—masseter, temporal, and internal pterygoid. These muscles hold the head of the bone so firmly in the glenoid fossa that it cannot be forced over upon the eminentia articularis, while permitting the turning of the corresponding head of the bone about a vertical axis; a movement necessary to the transverse play of the lower molars, and which, considering the dimensions of the fossa and the arrangements of the ligaments, can be accomplished without the head leaving the cavity.

At this moment the three muscles of mastication of the opposite are in a state of inactivity. But now the external pterygoid is free to contract and pull the head of the bone upon its side upon the eminentia articularis. This is the muscle which brings about the grinding motion proper of the opposite sides of the jaws. The grinding motion of the right side is accordingly the resultant of the simultaneous contraction of the three muscles of mastication of the right side, together with that of the external pterygoid of the left side.

With these principles in mind, you will be enabled to readily understand the differences in the paths which the molars of the two sides describe during the grinding motion upon the skull.

We mark out in the region of the molars two overlying points by means of vertical lines. At the completion of the grinding movement these lines will be found to remain vertical over one another. Upon one side (condyloid process within the fossa) the masticating surfaces of the upper and lower teeth remain in contact, but the outer edges of the lower molars project beyond those of the upper. Upon the opposite side the coronoid process has advanced upon the eminentia articularis; the line marked upon the lower teeth has advanced far forward; the upper and lower teeth are separated by an interval, and the lower are, moreover, pushed forward and towards the tongue.

You see, thus, that the transverse movement of the lower molars against the upper, with uninterrupted contact, is the essential condition which must be fulfilled if the movement of mastication is to be effective. Inasmuch as this movement

cannot be accomplished with the simple angle articulators, the latter are unable to throw light upon the question of greatest importance,—namely, the functional requirements of prosthesis.

Bonwill has replaced these by means of an instrument most happily conceived, wherein this defect has been overcome. In order to imitate the natural lateral excursions as closely as possible, he has based the dimension of his articulator upon that of the jaw. The distance between the turning points is 10 c.m.,—i.e., the average distance between the centres of the fossæ. It is then only necessary to so arrange the cast of the lower jaw that the interstice between the two lower middle incisors shall also come to lie 10 c.m. from both turning points. This gives an arrangement of the cast which fairly corresponds to that of the lower jaw with reference to the articulation. You can readily convince yourselves that under these circumstances the separations of the lower teeth as we cause the jaws to go through the grinding motion completely correspond to those with which we have become acquainted upon the skull.

The instrument has been criticised for the reason that its correspondence to the actual position of the lower jaw is only approximate, and not perfectly exact. Perfect imitation in every case being impossible, we must be satisfied with what is attainable. It would certainly be foolish to refuse to avail ourselves of a good thing because it is not perfection. The absence of an eminentia articularis and the consequent inability to reproduce the depression of one side of the jaw during the grinding movement has been urged as an objection. This defect is, however, of small practical import, for when the denture is adjusted in the mouth the structure of the articulation brings about such depression of its own motion.

In view of the great importance of the lateral movement of the lower molars for the act of mastication, there can be no doubt that an appliance which imitates this movement, imperfectly though it be, deserves the preference over such as do not permit the movement.—*The Dental Cosmos*.

A CASE FROM PRACTICE.

By Dr. E. A. SMITH, Rome, N.Y.

In the early part of August last a patient was sent to me. He was a man fifty-four years of age, rather anæmic and anything but healthy in appearance. He had been a sufferer from severe facial neuralgia for five years. He had been to several different physicians, and while they had been able to comfort him somewhat by the use of medicines, yet the cause was there and his neuralgia was becoming worse. He had just arisen from a very severe attack which had been of several weeks' duration. The nerve specialist who had been called during this illness, advised him to have his teeth thoroughly examined as soon as he was able. I at once asked him something of the character of the pains. And he said that he had had very severe paroxysms in the superior maxillary region on the left side, and pain in the region of the right inferior maxillary as well as in that side of the tongue. I examined his mouth and found his teeth in apparently good condition. He had lost the four superior incisors, left second bicuspid and third molar and the two bicuspids and third molar on the right, also the lower third molars and second bicuspids. Both lower first molars had large amalgam fillings in the occluso-buccal surface and to these I first directed my attention. I drilled through the fillings and found both teeth living. I then took out a large filling in the upper left first bicuspid and found it living also.

I then drilled through a small filling in the first superior molar on the same side with the same result. As a thorough examination had been made of all the parts but the teeth, I felt justified in sacrificing pulps in a search for pulp-stone. I devitalized all of the four, one at a time, and found that I could get access to all canals of each. Feeling that there was no pulp-stone in these, I decided to extract, in the hope of finding exostosis. I administered nitrous oxide gas and took out first the lower molar on the right side which I had previously devitalized, also the upper left first bicuspid. I found exostosis on the inferior molar but none on the bicuspid. Three days later I extracted the devitalized superior and inferior molars on the left side and found very marked exostosis on the lower, while the upper one broke, leaving the lingual and posterior buccal roots. I secured the lingual

root with an alveolar forcep and after the gum had healed somewhat I removed the other root with a pair of pliers. The pain lessened somewhat very soon and after a few days the patient felt very little pain in either side. He has had some pain on the left, however, and it may be necessary to extract more teeth.—*Items of Interest.*

GANGRENE FROM THE APPLICATION OF DILUTE SOLUTIONS OF CARBOLIC ACID.

Francis B. Harrington, M.D., points out in the *American Journal of Medical Science*, an unfortunate result of the popularisation of the antiseptic treatment of wounds, viz., that dilute solutions of carbolic acid are applied as moist dressings—a practice liable to produce gangrene. During the last five years the writer has seen eighteen cases of gangrene from this cause. In a large proportion amputation was necessary. Including the above, 132 cases have been recorded. The patient suffers from a wound or pain in a finger, the member is wrapped with a dressing saturated with the solution. Numerous cases have been reported in which three and two per cent. solutions have caused gangrene, which has resulted in amputation. Usually the wrappings have been kept saturated for twenty-four hours. Probably the strength of the solution has less to do with the result than the time of application and the thickness of the epidermis. Peirce reports the case of a child, age 10, who lost the second and third joints of a finger after twenty-four hours' exposure to a compress saturated with a one per cent. solution. The destructive effect of pure carbolic acid is generally recognised, and gangrene from its use is rarely seen. The injury is usually less serious than from weak solutions. The action of weak solutions is insidious, as the injury is done without suffering. Strong carbolic acid forms a slough which resists penetration of the acid into the deeper tissues, so that gangrene of an extremity is less likely to follow than from the use of weak solutions. In one of the cases reported a transverse section was made through the finger after the removal of the bone, and examined microscopically. The vessels of the skin and subcutaneous tissue were thrombosed, and colonies of bacteria were present in the bloodclot. There was a wide zone of round-cell infiltration, among which were polynuclear leucocytes in large numbers. In places the tissue was liquefied and pus was

formed. Down to the periosteum there was diffuse infiltration of round cells, and many of the small vessels were thrombosed with areas of hæmorrhage among the tissues. The process was a total superficial necrosis with deeper purulent inflammation and hæmorrhage. In 1896 Josef Levai showed that gangrene from the use of carbolic acid is due to a direct chemical action on the tissues, and that other dilute chemicals have the same effect. Five per cent. solutions of muriatic, nitric, sulphuric, and acetic acids, and of caustic potash, produce gangrene when applied to an extremity by a moistened compress for twenty to twenty-four hours.—*Medical Times*.

Reports of Societies.

STUDENTS SOCIETY, NATIONAL DENTAL HOSPITAL.

The Annual General Meeting of the Society was held on Friday, December 7th. The President, Mr. H. J. Relph in the chair.

After the minutes of the last General Meeting had been read and confirmed, the following list of officers were proposed for 1901.

President—Dr. Maughan.

Vice-Presidents—Mr. H. J. Relph and Mr. F. M. Farmer.

Council. Past Students—Messrs. N. Black, R. Lockett, E. Thorne. Present Students—Messrs. Blundell, H. Green, J. Olver.

Hon. Secretary—Mr. Hamilton.

Hon. Treasurer and Secretary to Council—Mr. H. J. Elstob.

Permanent Curator—Mr. S. Rose.

Hon. Librarian and Assistant Curator—Mr. L. Mosely.

Auditors—Messrs. L. Bennett and Howorth.

The Chairman then called upon Mr. Mosely for the Report for 1900.

SECRETARY'S REPORT.

Mr. President and Gentlemen,—In presenting to you the Secretarial Report for 1900, I must acknowledge with thanks the kind and able assistance I have received from the Council and members of this Society. During the past year many

able papers have been read at the meetings, and practical demonstrations for which we owe many thanks to Messrs. Ash & Sons and De Trey, have rendered our meetings of deep interest and utility. As regards the social life of the Society, I do not think we are in any way behind last year, which as Mr. N. Black, the then Secretary remarked in his report was a "record year." But I am sorry to say our efforts have not always been crowned with financial success, a deficit being shown on "Our Smoker" and "Dance." In spite of this I am able to report a balance in hand of £7 15s. 3½d., being £3 15s. more than last year. I have no doubt our President will refer to the important work undertaken by the executive of the Society this year, I mean the enlarging of the Museum, and placing it on a footing which it should occupy in a Hospital like this if it is to be of use to the Students. I am sure the best thanks of the Society are due to Messrs. Relph, Rose, Bennett, and Thorne, for their untiring efforts in this direction, and also to the Hospital authorities for giving up the Board room as a new Museum, and the monetary assistance subscribed by them and other gentlemen. This, gentlemen, concludes my report, and I think we may look back on the past year as a year in which we have fully maintained the progress made the year before. I have only to thank you once again for your assistance to me in my secretarial work.

LEWIN MOSELY, Hon. Sec.

In the absence of the Treasurer (Mr. Olver), Mr. Mosely read the balance sheet.

Mr. H. J. Relph, the retiring President, then read his Valedictory Address which was received with great applause, which is published on page 153.

The meeting was adjourned till January 11th, owing to the list of officers having to be posted in the hospital for three weeks previous to election.

ADJOURNED GENERAL MEETING HELD JANUARY 11th.

Owing to the unavoidable absence of Mr. H. J. Relph, Mr. T. Read was elected to the chair. After the minutes of the last meeting had been read and confirmed, the list of officers previously given was unanimously elected.

A sub-committee comprising Miss Handley, and Messrs. Black, Tice, Wheeler, Olver (Hon. Treasurer), with Mr.

Blundell as Hon. Secretary, was elected to consider the advisability of holding a dance in February. Upon the Chairman calling for Casual Communications, Mr. Mosely produced models of a case of well-marked superior protrusion, and another showing the retention of a superior incisor at the age of 31. Some three-rooted molars shown by Mr. Humby and Mr. Hasken led to a general discussion which continued until the meeting was brought to a conclusion by a vote of thanks to the Chairman, Mr. Read.

The monthly meeting of the Society was held on Friday, February 1st. The newly-elected President, Dr. Maughan, in the chair.

The Chairman announced that owing to the death of her Majesty it had been decided to postpone the dance indefinitely.

Upon Casual Communications being called for, Mr. Devonshire showed an interesting case of false gemination, the joining tissue being cementum; etiology, chronic peridontitis resulting in cementosis.

Mr. Olver brought forward a model showing marked elongation of the cingulum of both laterals in upper jaw.

A temporary upper molar with four roots was shown by Mr. Elstob.

The Secretary showed, on behalf of Mr. Blundell, a home-made filling, Gutta-percha having been used to such an extent as to throw the bite completely out; and for Mr. Black a case where the frænum had forced the two centrals apart. All of which gave rise to discussion, in which Messrs. Rose, Thorne, Devonshire, and Smith took part.

Dr. Maughan then rose and delivered a highly interesting address, which was much appreciated by a large and enthusiastic meeting. It appears at page 145.

In proposing a vote of thanks to Dr. Maughan, Mr. Rose congratulated the Society on having obtained Dr. Maughan as their President, which was endorsed by Mr. Smith who seconded the vote. Before this was put to the meeting, Mr. Thorne rose and said that the students would like Dr. Maughan to understand how glad the students themselves were at having Dr. Maughan for their President, that the election of the President lay entirely with the students, and that he himself did not think they could have made a happier choice.

Dr. Maughan before closing the meeting announced that he would be pleased to give the following prizes:—

For the two best papers delivered during his year of office, two prizes. The first of the value of £3 3s. The second £1 1s.

For the best Casual Communication. The first of the value of £2 2s. The second £1 1s. (Applause).

Dental News.

THE INCORPORATED DENTAL HOSPITAL OF IRELAND.

ANNUAL MEETING.

The third annual meeting of the Dental Hospital of Ireland, was held recently held at Lincoln Place, Dublin. Mr. James G. Pollock, J.P., chairman, presided, and there was a large attendance of members and subscribers.

The Chairman proposed—"That the governors, life members, annual members, and subscribers of the association, convey to his Majesty King Edward VII. and the Royal Family their sincere and heartfelt sympathy in the bereavement which has befallen them in the death of our beloved and honoured Queen." Mr. A. Duffy seconded the resolution, which was passed unanimously.

The annual report, which was of a satisfactory nature, stated—The number of cases treated amounts to 23,525, an increase of over 2,600, and this increase is mainly where one would wish to see it—namely, in the preventive and constructive direction, rather than in the extraction of teeth. Thus, whilst the extractions advance from 15,187 to 15,892, the increase in fillings is far more marked, being from 2,848 to over 4,000, and in the mechanical treatment of irregularities, from 44 to 102. The cases treated under anæsthetics show a very remarkable rise from 1,073 to nearly 1,500. In order to deal efficiently with this ever-expanding mass of work, it has been found necessary to increase the honorary staff by the addition of four assistant dentists and three anæsthetists.

The school report which showed there were nineteen students, was very satisfactory.

On the motion of Mr. W. C. Stubbs, the reports were unanimously adopted.

Mr. Wilson Fair proposed, Mr. Murray seconded, and it was resolved—"That the growing usefulness of this hospital, as evidenced by the report of the last year's extended work, commends itself to public notice, and calls for increased subscriptions to enable the Board of Governors to complete the remainder of their building, and provide the accommodation necessary to a well-regulated dental hospital.

DEATH UNDER CHLOROFORM.

The death of Miss Anne Emma Wright, Westgate Road, Newcastle, the young lady who succumbed while under chloroform in a dentist's surgery, formed the subject of a recent coroner's enquiry.

Evidence of identification was given by Hannah Elizabeth Wright, a sister of the deceased, who stated that their father was a tailor. Deceased, who was twenty years of age, had not been enjoying good health for about four years, and on the recommendation of Dr. Lyle she last year went to Harrogate for a stay. She returned home to Newcastle about November greatly improved, and she continued to get better. The doctor at Harrogate had recommended her sister to have all her teeth extracted, and they consulted Mr. Robinson, a dentist of Northumberland Court, Blakett Street, Newcastle, about the matter. She accompanied her sister to see a Dr. Stockton for the purpose of ascertaining whether she was strong enough to take the chloroform. Dr. Stockton pronounced her sister's heart to be quite strong enough, and on Wednesday morning at about half-past ten o'clock they went to Mr. Robinson's surgery. The chloroform was administered and a number of teeth were extracted, when she noticed a change come over her sister, and she was asked to leave the room. On re-entering about three minutes later she found Mr. Robinson and the doctor who was present attempting to revive her sister by means of artificial respiration. She was asked to leave the room again, and subsequently Dr. Baumgartner arrived, and she was afterwards told that her sister was dead.

Dr. Herbert Samuel Stockton, of Gateshead, said he care-

fully examined deceased at Mr. Robinson's surgery in Newcastle on Monday morning with the view of ascertaining whether she could safely undergo chloroform, and he found no ostensible reason why chloroform could not be safely administered and the operation of teeth extraction performed. On Wednesday morning he attended the surgery again by appointment and after a slight examination of her with the stethoscope administered chloroform to the deceased. He used three drachms of chloroform, which was the usual quantity for operations of the kind, and she took it exceedingly well. The operation was nearly completed, all but two teeth having been drawn, when witness noticed her become very pale and her breathing become laboured. They attempted to revive her by means of artificial respiration, employing every means to bring her round, but without effect. Death was due to failure of the heart's action, caused by the chloroform. Instances of death under chloroform were rare, being about one or two in 4,000 or 5,000, and it was impossible to foresee the fatal result. The examination, such as he had made, was the best known test for deciding the patient's capacity to stand chloroform. She had a very bad set of teeth, and the operation could not have been performed without the administration of chloroform. He had fourteen years' experience of administering anæsthetics, and this was his first fatal case. Deceased had had 20 teeth extracted.

A Juryman (to witness) : You say her heart and lungs were perfectly sound. How in that case do you account for her death if there was not an overdose ?

Witness : There are cases in which patients have died from the first few whiffs. It does occur, and you cannot account for it.

The Juryman : Then there must have been a weakness of the heart.

Witness : There was no weakness of the heart.

The Foreman : She might have died at any moment after the chloroform was administered ?

Witness : A patient is always under danger. There is always a certain amount of danger.

The jury without retiring found that death was due to chloroform, but that the chloroform was necessary, and had been properly administered.

DEATH UNDER CHLOROFORM.

An inquest was held recently at Castlemaine, Victoria, before Mr. J. F. Hughes, J.P., and a jury of five, on the body of Miss Jennett Violet Beattie, daughter of Mr. Beattie, of Mount Aitken, Gisborne.

J. A. Beattie, brother of deceased, stated that she had been in good health.

Dr. Woolley deposed that by appointment he attended Freeman's dentistry to administer chloroform to Miss Beattie, who wanted six teeth extracted. He examined her heart, and found it healthy. Miss Beattie was in an exceedingly nervous condition, and shook like a leaf as soon as she smelt the drug, although she told witness that she had previously taken chloroform four times. The patient broke into laughter for about twenty seconds, then gave four long drawn breaths and died. He at once applied artificial respiration, but without avail. The patient inhaled only half a drachm of the anæsthetic. He was of opinion that Miss Beattie died of heart syncope.

In answer to deceased's brother, Dr. Woolley did not consider the heat of the day or the patient's condition was against the use of chloroform. Immediately death set in deceased's face turned blue black, and the eyeballs were intensely congested; persons dying under chloroform presented no such symptoms.

Dr. Maxwell deposed that he made a post mortem examination, and found that death resulted from cardiac syncope. Death could have been caused by chloroform or fright, but from the amount of chloroform said to have been used he did not consider that death was caused by chloroform, but by heat apoplexy.

To a juryman, Dr. Maxwell replied that the failure of the heart's action was not due to any diseased condition.

Dr. Woolley stated that a Miss Greene was present while he administered the chloroform, and that Mr. Freeman, the dentist, was in and out of the room during the time.

Mr. Freeman, who is a borough councillor, left on Thursday to participate in the Commonwealth rejoicings at Sydney.

The jury expressed their desire to have the evidence of Mr. Freeman and Miss Greene, and the inquest was adjourned for a week to allow of their being present.

SYDNEY SCHOOL OF DENTISTRY.

Since the passing of the Dentistry Act, the Senate at the University has again had under consideration the question of the establishment of a school of dentistry, to enable persons to obtain a qualification within the colony.

It is proposed that the school should be established by the University, in conjunction with the Sydney Hospital; and a joint committee appointed from members of the Senate and members of the board of directors is at present taking the necessary steps for the establishment of the school.

The curriculum will cover a period of three years, during which the time of a student will be occupied the whole day, either in attending at lectures and laboratory instruction at the University or at the out-patients' department and laboratory for mechanical dentistry in the Sydney Hospital. In those subjects, which are common to the dentistry course and the curriculum for medical students in the University, such as chemistry, physics, anatomy, physiology, and dissections, the dental student will attend the same classes as the medical students; but certain special courses will also be established for them at the University, in such subjects as dental anatomy, physiology, materia medica, and therapeutics, pathology and bacteriology, and practical metallurgy. At the Sydney Hospital, the students will be under the instruction of the house dental surgeons of the hospital, and will be required to attend systematic lectures in surgical dentistry. In mechanical dentistry, there will also be systematic lectures and laboratory instruction under a skilled mechanical instructor.

The preliminary examination required on the part of dental students will be the ordinary matriculation examination of the University, but it is proposed that those students who have bona-fide engaged as apprentices to dental practitioners for a period of not less than twelve months before the 31st of December, 1900, or have studied dentistry for a like period before the same date in a hospital, with a special dental department, may be admitted to the curriculum without passing the preliminary examination.

The joint committee of the University and the Sydney Hospital, above referred to, is to meet shortly, for the purpose of taking steps for the appointment of the necessary officers to enable the curriculum to be commenced next March.

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2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
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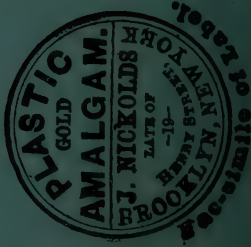
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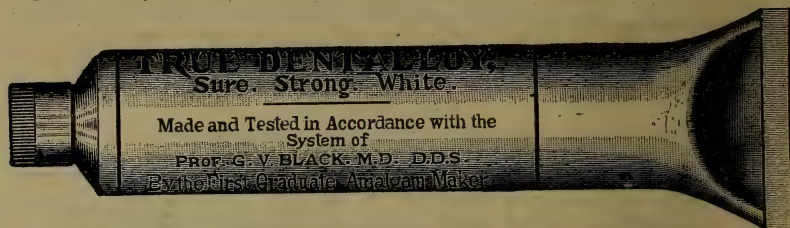
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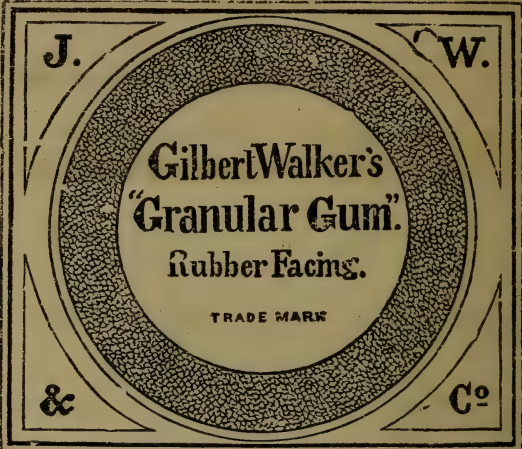
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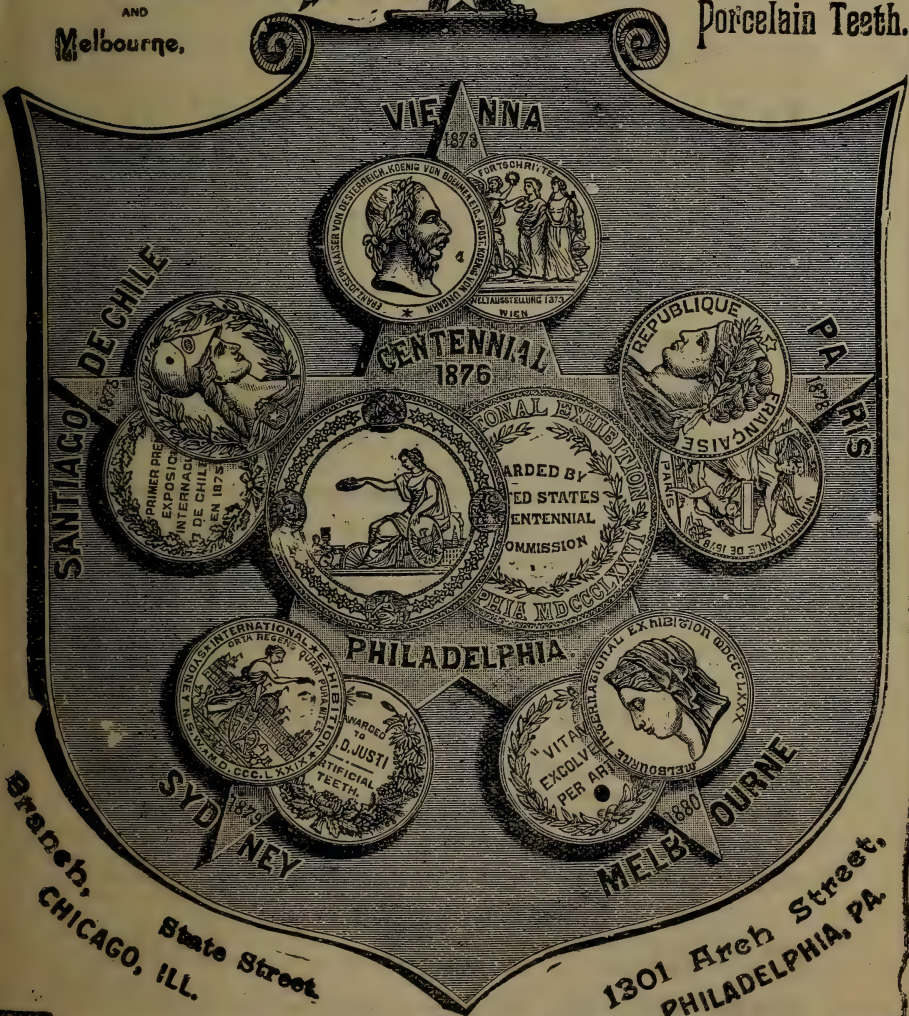
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British Journal of Dental Science.

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THE BEST FILLING-MATERIAL FOR THE TEMPORARY TEETH.*

By JOHN J. BURKE, D.D.S., Mahanoy City, Pa.

Mr. President and Gentlemen,—It is not without some embarrassment that I venture to intrude myself and my poor ideas upon such a distinguished gathering of learned practitioners and teachers of dentistry. I cannot help feeling my littleness, and the apparent insignificance of the sum I can contribute toward furthering the interests of dental practice. I am confronted with the ablest practitioners and the most renowned teachers in our calling, men who have given many years of effort to discover and set forth whatever is best in all lines of practice; among such it almost seems like presumption for me to announce that I can tell you the best material for filling the temporary teeth, and I must not fail to preface what I may say with the explanation that I mean what has proven the best in my hands. Hesitation to make the heading of my topic too long accounts for the title as it appears on the programme. A more correct heading would

* Read before the Pennsylvania State Dental Society. Reported in "The Cosmos."

be something like this: "A filling material which has given me great satisfaction in preserving the temporary denture."

Intspeaking to such an audience as is here assembled it is unnecessary to spend time and phrases in defence of the preserving of the temporary teeth. I take it for granted that all agree with me as to the necessity, from a professional and humane standpoint, of caring for [and preserving these teeth in order to promote the comfort and well-being of the children that come into our hands. Nor do I suppose there will be found many who will not readily agree with the statement that no more difficult and trying phase of the dentist's work presents itself. I believe I voice the sentiment of the great majority of my *confreres* when I say that, were it not for the sense of duty compelling me to undertake this work, I would be glad to give over the filling of children's teeth entirely. But we cannot do this, and, since we must fill these temporary teeth, it of course follows that we are desirous of doing so in the easiest and best manner. To this end the material to be used must always be an important factor, and my object in this paper is to give my experience. If I can make it easier for a single dentist to perform the disagreeable and trying task I shall not have written in vain.

To all who are filling temporary teeth to their entire satisfaction, and who have found a material which suits them, I have nothing to say. But perhaps there may be within the sound of my voice some who, like myself in the first years of my practice, are feeling a need of something more easily worked; and to them I address myself, and recommend a trial of what has for nearly ten years been my mainstay in filling these teeth. It is no new material or combination of materials, but one as old as amalgams are; one which has been on the market for many years, has been used by many

as a filling material, and has been condemned as heartily as anything ever has been in our practice.

I refer to *copper amalgam*, and I presume that nearly if not all of those present are in some degree familiar with it and know its general characteristics,—how it works and how it lasts, or rather fails to last in many places. To all who have used it any description of these is unnecessary, but for the benefit of such as do not know of it I say that as a saver of soft teeth it has no equal in my experience, taking more kindly to the imperfectly calcified structure than even oxyphosphate of zinc itself, and checking decay as does nothing else with which I am acquainted. As to its working qualities, they are everything that can be desired, I think. I know of not a single point of desirability in manipulation that it does not possess, so far as the filling of the temporary or other frail teeth is concerned. There are uses to which I put it occasionally where its slow setting is a detriment, but this, in the case under consideration, is one of the points in its favour. The great objection generally urged against it is its tendency frequently to disintegrate in time, thus rendering it an uncertain filling substance. Freely acknowledging this defect, I am still surprised that it has been overlooked as a material in operations where no great degree of permanence is looked for, as in operations on the deciduous teeth. Were its lasting quality as dubious here as I admit it to be in the mouths of adults, I should still maintain that its saving and manipulative excellencies would make it worthy of use where these qualities are so desirable. But the fact that after ten years' practice with it I have discovered that it does not disintegrate in the mouths of children, but maintains its integrity indefinitely, removes from it every objection, unless you call its colour an objection, which I do not in the posterior teeth, where our principal work lies. We are seldom called upon to fill the anterior temporary teeth, and

when we are, their easy approach and the lack of stress on the fillings, etc., make it unnecessary to resort to other than gutta-percha as a general rule. I confine myself in advocating copper amalgam to the posterior teeth almost exclusively, but not entirely so.

Now, the claim I make is that for filling the temporary teeth, wherever the colour is not an objection, there is no material equal to copper amalgam, and I offer in support the following points :

1. It prevents recurrence or extension of decay absolutely, being antiseptic and non-shrinkable.
2. It is so plastic that its manipulation is a delight.
3. It is so slow setting that no haste need be made in the operation, although its easy working makes it possible to put in a filling more quickly than with any other material.
4. It may be placed in close proximity to the pulp, being non-irritating ; and can be inserted without making pressure thereon.

It can be picked up from the tray and carried to the cavity by almost any sort of instrument, and is the only plastic I know which seems to possess as much affinity for tooth structure as for the instrument.

5. It is not affected by the presence of saliva, either in the cavity or on the unfinished filling, as are all the other plastics ; no special pains to have perfect dryness is necessary.

6. The filling is more easily and quickly finished than that made from any other substance.

But with all these desirable and serviceable qualities, its use would be impaired did it manifest in the deciduous teeth a characteristic often noticed in the permanent,—that of wasting away on the surface, and thus becoming imperfect as a filling. This defect is the radical one in copper amalgam, and renders it unfit for general use, despite its many most excellent traits. I can speak only from my own experience,

but can say that in a test of nearly ten years it has never shown any inclination to disintegrate in the temporary teeth. I have used it exclusively almost for that length of time. Such being the case, and with the working qualities mentioned, I can come to no other conclusion than that it is the materia *par excellence* for these teeth.

A few words as to the procedure in an ordinary case and I am done, for I do not wish to draw out my discourse unnecessarily. If the subject is deemed of enough importance, the discussion will bring forth details. Let me state a case,—the last one I had to deal with before compiling this paper : A child of three years is brought into my office, and the announcement is made that she has complained several times recently of toothache. I look in the mouth and find cavities in the approximal surfaces of the right upper molars. With a chisel I break away the friable enamel from the cutting edge, and find extensive decay in the disto-proximal of the first molar and slight decay in the mesio-proximal of the second molar. I bur the former away freely, opening it up well, and remove the soft decay with spoon excavators. I feel sure that pulp-exposure exists, at least potentially ; but, as no bleeding occurs during the removal of the decay, I do not investigate very closely, and, applying to the region my favourite medicament, I place a pellet of copper amalgam in the cavity and with a round burnisher gently rub over the surface, pressing firmly away from the spot where the pulp is, and against the margins ; add another piece in the same way, and continue till the cavity is filled. Such is the nature of this amalgam that a very firm filling may be introduced without pressing in the least upon the pulp. Now, so soft is the filling that no trouble is found in passing a ribbon saw, after which silk floss finishes the work, and I send the girl away feeling that all will be well.

When I contrast this simple and effective procedure with

the one I tried to carry out before I began using copper, I confess to a feeling akin to joy. I well remember my frantic efforts to fill such a case years ago. The attempts to secure and maintain dryness, to keep the pulp from pressure and irritation, and the harrowing attempts to get a cement mix. without an assistant, which would be neither too hard nor too soft when I was ready ; then the feverish anxiety in trying to get it in while in mortal dread of an influx of saliva ; finally the endeavour to put some kind of finish on the already hardened filling, and the sending of the patient away with that scarcely delightful thought that I had made but a sorry job of it, anyhow.

Gutta-percha was no better : required the same dryness ; heated so as to alarm the child ; sticking to the instruments, and more difficult to finish than cement even.

Ordinary amalgam in such a case offered no inducement.

Thus I feel great reason to bless the time when I stumbled upon copper amalgam, and, as I have never seen it advocated for the purpose, the thought came to me that I ought to tell others what it has done for me. This I did a year ago in our Susquehanna Society, and now do here. I was loth to make any claim till a considerable length of time had elapsed in order to test the lasting qualities of the material, else I should have found occasion heretofore to offer my little experience to the great sum of which I myself have been the beneficiary.

Occasionally, when you are polishing a work of (shall I say art or energy), the filling exhibits unmistakable signs of wabbling. Now, don't take it out after all your trouble. Stick it in with mastick, tie it in, but for goodness sake don't take the filling out.

THE FRAUDULENT DIPLOMA BUSINESS.*

By W. C. BARRETT, M.D., D.D.S., Buffalo, New York.

The latest triumph of law over what at first seemed insuperable obstacles should fill the heart of every honourable man with devout thankfulness and hope for the future. One of the foulest plague spots that has existed in connection with our professional life has been cleansed, and certain men who have for years defied law and public opinion suddenly find themselves behind prison bars. James and William Armstrong, of Chicago, who conducted the "Metropolitan Medical College," a diploma mill of the very worst character, have been found guilty of issuing fraudulent diplomas, and at this writing are in jail for their crimes. This, with the conviction a few months ago of the men who conducted another notorious diploma mill under the name of the "Cosmopolitan Medical College," and which also figured under a number of other appellations, such as "The Illinois Health University," etc., etc., while not securing the incarceration of all the men who have richly earned a cell in prison, will, it is believed, practically put an end to the selling of degrees in Chicago.

It should be comprehended that, contrary to the usual belief among dentists, there never has been a fraudulent dental college. It is true there are dental schools in Chicago whose course has been little more than a travesty on dental teaching, and that some of them have been practically recognized by the State Dental Examining Board, but there has been none that granted degrees except upon an attendance that at least fulfilled the forms of the law. All the admittedly

* Contributed to the "Dental Review."

fraudulent degrees in dentistry have been granted by pretended medical schools, not one of them masquerading as a dental college.

It is a matter of astonishment, not alone to foreign dentists but to most of the profession in America, that this infamous traffic should have so long been carried on with seeming impunity. The reasons, while not at first apparent, were sufficient to account for the disgraceful fact. In the first place, the sales were almost exclusively to men in foreign countries. England was a good customer, while Germany and Italy were close seconds. Mexico and Central America were fruitful fields, while South America, Australia and the East Indies absorbed many of the vile products. Few were sold in America for various reasons. In the first place most of the States have laws regulating medical and dental practice, under which these fraudulent diplomas cannot be used. Besides, the professions of America had local knowledge of which are regular and reputable schools. In foreign lands they have no such information, and hence the high-sounding titles under which these affairs conducted their business readily imposed upon their people. Of course no one who ever obtained the degrees that were conferred upon a mere money consideration could fail to understand their true character. They were deliberate parties to the fraud.

As comparatively few irregular diplomas were issued in this country, because they could not be used on account of the readiness with which they were detected, and as anyone purchasing one of them was aware of the risks he ran in attempting its employment, he himself being liable to arrest for fraudulent practices, it was almost impossible to secure conviction here. The swindlers were constantly on the watch for detectives who sought to procure diplomas in a fraudulent manner, and were exceedingly wary. They had their agents abroad through whom the nefarious business was transacted,

and affairs were so managed that no one appeared personally in either the negotiations or delivery of the goods. Decoy letters did not catch them, for they scented danger from afar. Registered letters have been known to cross the ocean a number of times without finding anyone to receive and receipt for them.

That Chicago has been the headquarters for this kind of swindling is due to a vicious law of the State of Illinois, passed twenty-seven years ago, and which was honestly intended to foster legitimate business enterprises. In time it was discovered that under its loosely drawn provisions it was possible to incorporate educational institutions as commercial concerns, and thus to give them a legal status. The Secretary of State of Illinois was obliged to certify that they were regularly and legally organised, and this certificate was by them published in connection with their advertisements, while at the same time he personally knew them to be engaged in fraudulent practices. It has been found impossible to obtain a repeal of the obnoxious law without at the same time wiping out of existence and making illegal the past acts of many legitimate business enterprises. The most that could be done was to obtain another enactment that would defue what was a fraudulent use of the law.

The State Board of Health of Illinois has for a number of years been earnestly seeking to suppress the irregular and fraudulent schools. Because of their regular incorporation, little progress could be made. Public sentiment was not aroused, and the people of the State were ignorant of the real condition. Few realized either the extent of the traffic or its full iniquity. After the Board of Health the chief credit for the overthrow of the diploma swindling should be given to the National Association of Dental Faculties. Although the concerns which were selling dental diplomas were pretended medical institutions, and were chartered as medical colleges,

the National Association of Dental Colleges, at its annual meeting for 1897, appointed what was denominated the Foreign Relations Committee, which was charged with the performance of certain educational duties relative to the reception in American dental colleges of students from Europe. In the discharge of its functions the committee became aware of the existence of very many diplomas in foreign countries which had never been issued by any regular college authorised to confer the dental degree, and they applied themselves to learn their source. They found that nearly, or quite all of them, emanated from Chicago, and they transferred their inquisition to that city, with considerable success.

At the annual meeting of the College Association, held in Omaha, in 1897, the committee made a report which laid bare the enormity of the traffic, and very plainly called attention to its demoralizing iniquity. It reported the names of several of these fraudulent Illinois affairs, and in no uncertain tones denounced them. The members of the various faculties listened with incredulity to the exposure and arraignment, and the report was actually amended by the association for the purpose of softening some of its expressions of censure. Even when so toned down the majority of the dental journals refused to publish it, lest they be sued for libel by the men who were even then in hiding from the law. The chief aim of the committee had been to arouse a healthy public sentiment, well knowing this to be the first essential to success in an open attack. They were aware of the embarrassments under which the State Board of Health were labouring, and strong language was used in the report that it might attract public attention.

The report, notwithstanding its partial emasculation, did that which it was intended it should do. Reprints of it were made by the committee, and these were sent where it was

believed they would do the most good. The presidents of the great universities of Illinois received copies, and were astounded at the extent of the iniquity that existed in their midst. They had not been fully aware of it, because, although the source of the filthy stream was at their doors, its effects were only exhibited at a distance. They at once called a meeting of the heads of the principle institutions of learning of the State, and an association for the purpose of bringing about a better state of affairs was formed. The presidents of Chicago, Lake Forest, and North Western Universities were appointed a committee to secure, if possible, a repeal of the vicious law under which the fraudulent affairs were conducted, and to obtain by legal enactment some system in the chartering of educational institutions that would for ever prevent any further abuses of the degree-granting power. The report of the Committee of the Dental College Association was read to the representatives of the schools, and extracts from it were printed and sent out almost broadcast. Its statements were repeated to committees of the legislature, and were used in the attempt to secure a repeal of the bill under which fraudulent colleges were incorporated. The newspapers took up the matter, and a healthy public sentiment in favour of the reform was aroused.

The National Association of Dental Faculties had placed an almost unlimited sum of money at the disposal of the Foreign Relations Committee, and directed it to proceed with the prosecution of the fraudulent schools. But the committee soon saw that alone it could do little. There was money in the fraudulent business, and the men who were engaged in it secured the very best legal counsel, retaining United States Senator William E. Mason, and other eminent lawyers. It is a comment upon the general ethical tone of the profession of the law, that there is nothing which forbids its most reputable practitioners to accept a fee for the express purpose

of assisting in the commission of a fraud upon a sister profession—to help to break down the only barrier that forms the common boundary of all professions. The legislation introduced by the Presidents of the Illinois Universities was defeated, but the special counsel retained by the Foreign Relations Committee, under cover of that failure, got through a bill which paved the way for other repressive measures. It was early seen that reliance could only be placed on the United States courts. There was a very stringent law of Congress against the use of the United States mails for fraudulent purposes, and under this it had been possible to put a stop to public lotteries and other such illegitimate schemes. The fraudulent diploma traffic must be carried on through the mails, if at all, and if United States law could be invoked, the Federal courts with their United States marshals would soon hunt the rascals down.

To get the matter before these courts, the Foreign Relations Committee was powerless, but the Illinois Board of Health, to its great credit be it spoken, took the matter in hand when societies and State Medical and Dental Examining Boards seemed indifferent. They have assisted the United States marshals in obtaining the testimony necessary for conviction, have brought the matter before the federal courts, and the result has been that the worst of the offenders have been convicted and condemned to prison for one year and to pay a heavy fine. It is not claimed that the infamous traffic has been finally and for ever broken up, for it is a difficult thing at a single blow completely to eradicate a profitable vice. Perhaps some associate of the now imprisoned swindlers, who has the plates from which were printed the diplomas, may occasionally sell one when he is assured that it will not be discovered, but there is little doubt that the rascals are now thoroughly intimidated, and will

hesitate before taking the chances of an imprisonment which it is demonstrated surely awaits detection.

But it will be many years before the reputation of our dental and medical schools will recover from the effects of this disgraceful business. Foreigners who were not well affected toward American dental colleges, to which in the past students from all countries have flocked, have charged upon our regular and reputable schools the crimes of these Ishmaelites, and have too often intimated that all were alike, and that American dental diplomas could be bought for money, and therefore no such document possessed any value. A prejudice against American schools and American dentists has thus been created, which has manifested itself in discriminative legislation against our graduates. It will take a long time for these impressions to become effaced, for they will be carefully cultivated by the men whose interest is to perpetuate them. Foreigners were always more responsible for the sale of diplomas than even were Americans, for it was their eagerness to become purchasers which encouraged the business. It could not have existed on the profits derived from residents in this country. But despite this the odium attaches to America, and perhaps it is right that it should. Though the receiver may be as bad as the original thief, the same punishment is not usually meted out to him.

It is most unfortunate that the general government can do nothing toward the promotion or regulation of educational interests, save in an indirect way. Each of our nearly fifty separate States is supreme in the management of its domestic affairs. The authority of the United States courts can no more be invoked in matters reserved for State sovereignty than in affairs of foreign nations. Education is one of the interests in which each State is autonomous and supreme. Therefore, such a thing as national regulation or national supervision in either secular or professional educational

matters is an utter impossibility. Any legislation on the part of Congress affecting the education of our youth would be unconstitutional, and therefore of itself null and void. A large proportion of our people are exceedingly apprehensive and jealous of federal authority, and persistent advocates of State sovereignty in everything save national defence, and hence uniformity in the laws regulating bankruptcy, divorce, property interests, and minor crimes over which State courts have jurisdiction, as well as national recognition and national uniformity in our schools is a hopeless dream. Each State will erect its own educational standard, and such as were settled by illiterate emigrants from Europe, and those whose inhabitants have inherited their ignorance, cannot be brought up to the level of the States which have a better educational system, save as the result of long years of persistent effort. But fortunately the mails are under national management, and schemes for swindling which are dependent upon them can thus be made amenable to United States law.

TOOTH SOAP.

Take of

White soap	...	...	600 grs.
Tincture of krameria	...	...	200 „
Precipitated chalk	...	...	220 „
Benzoic acid	...	...	30 „
Potassium chlorate	...	...	50 „
Borax	...	...	50 „
Saccharin	...	...	10 „
Oil of Cinnamon	...	...	1 mm.

British Journal of Dental Science.

LONDON, MARCH 15, 1901.

THE DENTAL HOSPITAL OF LONDON.

On the 11th of this month the new home of the London Dental Hospital opened its doors for the reception of patients and the training of students. The consummation of years of work and anxious thought thus brought to fruition cannot be passed over without a few words of retrospection, anticipation and congratulation.

The Hospital which was founded in 1858 was originally in a house in Soho Square, but this in time proving too small, a new home was found for it at 40, Leicester Square in which premises it has become so familiar to us all for the amount of charitable work it has achieved and for the number of qualified practitioners it has sent forth to all parts of the Kingdom and the Colonies. In 1883 the Hospital, owing to the rapid increase in its work, and the number of students, had to be enlarged, and for this enlargement the institution owes a debt of gratitude to Sir Edwin Saunders who on many occasions has proved himself a good friend to the Hospital and College, by founding the Scholarship which bears his name, and in many other ways, not the least of which was the assistance lent by Sir Edwin and his wife in the acquirement of the freehold of the old building which has proved a valuable asset.

As time went on and the need for enlarged accommodation became more imperative both for students and patients, it

became clear that either the existing premises must be enlarged, or that a new site and building must be procured. As the former alternative was impossible for several reasons, the latter scheme was agreed upon, and, a favourable opportunity for acquiring a new site in close proximity to the school presenting itself, the present building was erected. This building, which we have had the pleasure of inspecting, is in every way worthy of the charity and school for the accommodation of which it has been erected. Both the fabric itself and the internal fittings bear the stamp of first-rate workmanship, while the arrangement of the various floors, rooms, staircases, and lifts bear witness to the care and thoughtfulness which have been brought to bear on the problem of combining order with efficiency and economy in administration. The patient first goes to the Waiting Room, then to the Clinical Room, where he is examined and then sent to the part of the building appointed for his needs. If to the Stopping Room he finds a spacious well-lighted apartment with room for 150 pump chairs, 100 of which are at present available, each fitted with self-flushing spittoons, saliva ejector, hot and cold water and tumbler stand. The students' cupboards are ranged round the room, specially adapted to take the dental engine and cabinet, etc. There is a hospital sister in attendance with satellites who check the patients' work and payments and supply the students with materials. The mechanical department is equally well looked after. There are benches for 56 students who are presided over by a curator who has a storekeeper under him. Near at hand are a class room with benches, a plaster room, a sand-casting and furnace room, a regulation room, a room for fitting mechanical appliances, and a waiting-room between the two latter rooms, convenient for patients for either department, and a room for continuous gum and inlay work. The lecture theatre would be an ornament to any of our general hospitals, and is arranged with a series of black boards, diagram boards, and facilities for the use of the optical lantern. There is a special department for mechanical pupils who undergo their pupillage at the hospital, and who are kept

separate from the students and have their own curator. The rooms for ordinary and gas extractions are fitted up with the same care and with every antiseptic precaution.

Space forbids us saying more except that the only dark spot on the picture is the heavy debt which still remains to be wiped out, in spite of the strenuous endeavours of those who have given time, thought and money towards the fulfilment of their aim. The Staff and past and present students have responded nobly, and have contributed £15,450 in addition to a recent donation of £2000 from the Staff. We have a splendid dental hospital—perhaps the finest in the world—and we hope that those who are so much indebted to its teaching in past years will still find pleasure in affording such help as they can, and in making its claims known among their patients. We predict a glorious future for the Institution, and congratulate all who have assisted toward such a magnificent result.

DENTISTS AND BOARDS OF GUARDIANS.—At St. Marylebone Board of Guardians recently, on the recommendation of the Schools' Committee it was agreed that, with the sanction of the Local Government Board, a payment of a quarterly fee of 6d. be made by the Guardians for each Marylebone child, in respect of dentistry attendance at those Roman Catholic certified schools where a professional dentist is employed.

THE Metropolitan Asylums Board have invited applications for the post of Dentist to Bridge School, Witham, (160 children). Salary, £20 per annum.

SEPTICÆMIA AFTER EXTRACTION OF TEETH.—The *British Medical Journal* writes :—"Two deaths from septicæmia following tooth extraction have recently been recorded. In both cases the operators were unqualified dentists, and in both there seems reason to suppose that the infection was produced by dirty instruments. In the first case, which occurred at

Bow, the deceased had a tooth extracted at a chemist's in Rotherhithe, and stated to his wife that a pair of old dirty black pincers had been used, and added that he had felt half inclined to tell the man not to put the dirty things in his mouth. The necropsy made by Dr. Frederick Smith, Senior Pathologist and Lecturer at the London Hospital disclosed intense meningitis : all the teeth were loosened, there was an open wound in the left cheek, and the bone was bare. In witness's opinion the wound was due to carelessness ; a properly skilled dentist would not have caused such a wound. The forceps having been produced, one of the jurors remarked that the instrument was more fit for drawing teeth from horses than from human beings. The other case occurred at Manchester, death being due to septicæmia, which was set up, in the opinion of the surgeon called in consultation, by infection received at the time of operation. The operator was unqualified, and it was elicited from him that the words, "qualified by examination" appeared upon the premises, but, this, he said, did not apply to him but to the deceased Mr. Parkinson, whose executors carried on the practice. The words "exors of" are, or used to be, used in advertisements in very inconspicuous letters, while the name of Parkinson and his qualification are made conspicuous ; this has been going on for some years. In both of these cases the jury raised an emphatic protest against this sort of unqualified practice being carried on without let or hindrance."

SHAPING THE MODEL FOR A CROWN.—Dr. Keyser says in the *Dental Brief*: "In shaping the model for a crown, I find a decided advantage to form on the lingual and buccal or labial side a slight bulge, corresponding to the enamel projection seen on deciduous teeth. So formed, the crown slips over the root easily, and makes a closer fit. I have thought also that the gum, favoured by the slight protection this gives, covers the edge better, and is less liable to recede. When the crown is to be inlaid, or porcelain-faced, this projection is of artistic advantage by throwing the gold collar in the shade, making it far less conspicuous."

ALLEGED DENTAL FRAUD.—William Gillmore, alias Williame, 27, described as an artist, was charged at the Portsmouth Police Court, with obtaining 10s. by false pretences from William Henry Jackson, a seaman in the Navy, on June 21st, 1889. Detective Matthews stated that in June, 1899, the prisoner went on board H.M.S. Intrepid, which had just returned to Portsmouth from foreign service, for the purpose of selling among the crew certain medicines. He spoke to Jackson and remarked that his teeth were bad. He told Jackson that he was a dentist, and he suggested that one false tooth should be put in and another stopped. Jackson consented to go to an address which the prisoner gave him, and in the evening prisoner took an impression of his mouth, and said he would get his partner to do the work. Jackson was told to call in a week's time, but parted with a deposit of 10s. at prisoner's request. The next week the prisoner had absconded, and had not been found until a few days ago. When arrested at Landport, the prisoner admitted taking the 10s., but said he gave the job to a man whose name he did not care to mention. The prisoner was remanded for a week to enable the prosecutor, who is now at Devonport, to be communicated with.

SHELLAC REGULATING BANDS.—To paint shellac varnish over a tooth on which a band is to be placed as in regulating cases, helps to hold the cement. Paint on the varnish, wait till it dries, and then cement the band. It sticks like glue. So says Dr. Hodgkin.

NEW APPLIANCES.—At a recent clinic in Ohio, Dr. Price presented two very ingenious appliances; the first consisted of an instrument designed for warming and putting in gutta-percha fillings made after the principle of an electric cautery. It was suggested to the doctor that the same principle could be utilised in the making of a wax spatula. The second consisted of an appliance to the hand-piece of a dental engine for the purpose of blowing a constant stream of warm air into the cavity while excavating. A stream of air is forced over a small incandescent lamp in this way heated at the same time light is thrown into the cavity.]

Abstracts of British & Foreign Journals

NOTE ON THE ADMINISTRATION OF AN ANÆSTHETIC TO A PATIENT WITH DOUBLE ABDUCTOR PARALYSIS.

By OTTO F. F. GRUNBAUM, B.C.Cantab.

A rather thin, pale man, aged 24 years, was admitted to the West London Hospital for hæmatocele on Dec. 10th, 1900, under the care of Mr. Keetley, when an operation was deemed advisable. Upon the operation table the patient volunteered the information that he thought his heart was weak, because he became breathless on running. (Many patients make these remarks under similar circumstances.) He was assured that his heart had been examined and showed no signs of disease and the administration of the anæsthetic was begun. The patient took gas well; he passed under the influence of ether and had nearly lost the cyanosis due to gas when he ceased breathing. A gag was inserted and his tongue was drawn well forwards, but no signs of voluntary respiration occurring, artificial respiration was resorted to without delay. Since the pupils continued to dilate, while the passage of air into the lungs was accompanied by considerable noise, tracheotomy was suggested but not performed because the nature of the puff of air pressed out of the thorax during artificial respiration proved that there was a satisfactory air entry. Five minims of liquor strychninæ were injected. Two minutes later the pupils began to contract and after six minutes voluntary respiration with loud stridor began. Shortly afterwards the patient regained consciousness and recovered sufficiently to sit in a chair before the fire. He continued to gasp for breath, but showed that he had returned to sense and sensibility by a refusal to inhale any medication. The stridor gradually decreased and 40 minutes later it had disappeared. The following day the patient was feeling quite well. The character of the dyspnœa which

occurred under anæsthesia suggested some laryngeal stenosis. On questioning the patient further about his breathlessness on exertion it was elicited that any exertion produced noisy stridulous breathing and, further, that this difficulty had existed as long as he could remember. On the 14th Dr. J. B. Ball was asked to examine the patient. He reported that both vocal cords lay near the middle line and on deep inspiration approached each other slightly, still further narrowing the glottic aperture. The condition appeared to be that of complete bilateral abductor paralysis. The appearance was not exactly typical as there was a slight obliquity in the line of the glottic aperture.

The object of recording the case is to add to the list of pathological conditions which may lead to death during the administration of an anæsthetic, but which (without exceptional examination), may not give any evidence of their existence during life or on the post mortem table, however minute an investigation be made.—*Lancet*.

LOCAL ANÆSTHETICS IN EXTRACTION.

By GEO. E. DAVIS.

One of the most important questions which will confront every young practitioner of dentistry is the use of local anæsthetics for the extraction of teeth. This is especially true of men who locate in the smaller cities and villages, where nearly every dentist uses a local anæsthetic for extraction, and where a dentist's professional reputation often rests in his ability to extract teeth painlessly without the use of a general anæsthetic. Many people will not have any work whatever done by a dentist who will not inject a local anæsthetic for painless extraction.

Before cocaine was discovered, local anæsthesia was produced by spraying the parts surrounding the tooth with some volatile liquid, such as rhigolin or ethyl chloride. Rapid evaporation of the liquid caused a condition of intense cold

and local anæmia, during which the tooth could be extracted more or less painlessly. This method was never employed very extensively, as these volatile liquids are more or less dangerous to handle, and the parts do not always return to their normal condition, especially if the liquid is applied for too long a time. Cocaine has, to a great extent, taken the place of all other local anæsthetics. When first introduced it was found that application to the gum around the tooth to be extracted was of little value, and that to be effective it must be injected. When cocaine is injected over the root or roots of a tooth, the operation of extraction of that tooth may be performed without pain, or, at least, with very little pain. As far as the anæsthetic properties of cocaine are concerned, it is all that could be desired, but there are always dangers to be feared in connection with its use.

First. Danger from the toxic effects of the drug; one eighth of a grain injected about the head having caused toxic effects.

Second. Danger of septic infection, either from improperly cleaned syringe or from bacteria on the gum being carried to the deeper tissues by the needle.

Third. Danger of the injection being made between the periosteum and the bone, and thereby causing necrosis.

A large number of nostrums are advertised and sold for employment as local anæsthetics. Practically all of these contain cocaine and should never be used, as the quantity of cocaine injected should always be exactly known, and this is impossible when nostrums are used.

Eucaine has been used by many men with good success. It has one advantage over cocaine in that it may be boiled to sterilize it. The boiling would decompose solutions of cocaine and render them unfit for use.

Eucaine is also considered less toxic than cocaine.

A new local anæsthetic has recently been introduced under the name of chloretone.* Very few ill-effects have been observed from its use, but it does not always relieve a patient entirely from pain during extraction.

* The *Penn Journal* thinks it well to note what C. S. Kelsey, D.D.S., Elyria, Ohio, says in regard to the use of chloretone: "We used a saturated solution as recommended, and oh! such mouths! The stuff not only caused swelling and inflammation, but the gums just sloughed off in great patches, leaving terrible looking tissue. It is a destroyer to the gums. We had our syringe perfectly aseptic, so the sloughing was not due to that."

Some men recommend injecting cold water and depending on the power of suggestion to accomplish the desired result.

While cocaine is probably the best local anæsthetic we know of, there is always an element of danger in its use which brings out the question of our duty to our patients, and are we performing it in using cocaine as a local anæsthetic?

Penn. Dental Journal.

CAUSES OF LOSS IN WEIGHT OF PLATINUM.

The various causes of the loss in weight of commercial platinum when heated under certain conditions may be summarised under seven heads:—(1) Platinum is dissipated when it is made the cathode for the spark from an induction coil, alike in air, in vacuum, and in hydrogen; the phenomena are purely physical or mechanical. (2) When platinum is heated in a Bunsen gas flame sufficiently reducing to deposit some carbonaceous matter on the platinum a loss occurs, and is attributed to some constituent of the gas. (3) The same takes place in the ordinary smokeless Bunsen flame. Wittstein (1866) attributed the loss to the presence of osmium in the platinum, and Stolba (1870) found a platinum crucible lost weight at the rate of 16 milligrammes in twelve hours, though he did not think the loss was due to osmium. Erdmann (1860), with Pettenkofer, studied the behaviour of platinum crucibles in the Bunsen flame, and observed the formation of a grey coating, but without loss or gain in weight. Crookes and the author agree with Erdmann, and the suggestion is thrown out that possibly the platinum of commerce about 1866 to 1870 varied in composition. It may be noted that platinum heated in a flame of hydrogen containing arsine and then strongly ignited, shows the phenomena noted by Erdmann. (4) Platinum is dissipated when strongly heated in a furnace for firing porcelain; (5) when heated in a combustion tube in air, and (6) when heated by an electric current the metal is affected. Edison noted in the last case that glass surrounding the wire became covered with a mirror of what he assumed to be metallic platinum, but that the loss

ceased when a perfect vacuum was made. Berliner explained the phenomenon when he proved that platinum which had been exposed to air gave up gas when heated in a vacuum ; that while doing so the metal was dissipated, giving a deposit on the surrounding glass cylinder ; and that it ceased when gas was no longer given off. Hence, he concluded that the action was purely mechanical. (7) When platinum is heated before the blast lamp it loses weight. This was observed when using platinum crucibles for the conversion of calcium oxalate into calcium oxide ; the crucibles lost weight so rapidly that even an approximate constant weight could not be reached. Experiments show that the loss is due to the chemical action of oxygen, that certain elements are fractioned out of the impure platinum, and that the loss is not due to water-gas, as has been suspected, except in so far as this gas is likely to give a hot and strongly oxidising flame when used in burners having an air supply. The behaviour of platinum when heated under the last five conditions may be explained by the hypothesis that a volatile oxide of platinum is formed, stable at high and low temperatures, but unstable at intermediate temperatures, like the platinous chloride PtCl_2 , of Troost and Hautesfeuille. If, as is the case in the blast flame, the compound is swept away, the metal loses weight. If, on the contrary, the flame is a quiet one, as is the case when a crucible is heated in a Bunsen flame, and only a part of the metal is very strongly heated, the hypothetical oxide decomposes at once on emerging from the most strongly heated zone, and the platinum is deposited on the cooler part of the crucible, producing the molecular change of the surface, without gain or loss of weight, noticed by Erdmann and Crookes.—*Pharmaceutical Journal*.

I once heard of a case in which a young and energetic operator, in attempting to remove a fractured portion of an upper bicuspid, applied the forceps, placed his hand on the patient's head, and tried to make palm and forceps meet. "Is it out?" asked the patient. "Yes, oh yes," replied the young man, "it's all out;" "out of sight," he meant—he had forced it into the antrum.

A BANDED LOGAN CROWN.

By Dr. W. H. GENBLEY, Cincinnati, Ohio.

In this operation the root is prepared in the usual manner and the band made same as for Richmond Crown, except that no post is soldered to band. Instead, on elliptical hole large enough to admit Logan crown post, is punched. Place band on root, and if considered necessary, take wax bite; next insert an orange wood peg into the canal (not too tightly) and take impression in plaster. Upon removal, band and peg will come with it. Pour and separate model as usual, then withdraw peg from model, which will leave an opening giving the direction of canal. Place the waxed impression on model and run bite. Now select Logan crown suitable for the case, joint and articulate properly with carborundum wheels. Next fill the concavity in crown with thinly mixed cement and place back on model, this cements crown to band. After cement is set, with sharp knife trim plaster from around band, remove from model, and invest (crown down) in equal parts plaster and white sand. Pack gold foil around pin, lay on one or two small pieces of 18 or 20 carat solder, heat case and solder. This results in a crown possessing all the naturalness and strength of the Logan, with the additional advantage of having the root protected.—*Ohio Dental Journal*.

Be honest, whatever else you may be. Should you be consulted by a patient wishing a partial case, who says money is no consideration as long as the best is done for them, do as the dentist did whose case (so I'm told) is now in the Manchester Dental Hospital Museum. Make the case on the American plateless system. Clasp the teeth with pins, ordinary brass pins, put the broken ends of a steel pen nib between the bicuspsids, solder the whole thing, and—don't blush when you give it to the patient. In the case I am referring to, the gentleman complained of a bad taste in his mouth, but the dentist, being an honest man, ordered something for his stomach.—*Edinburgh Dental Student*.

USES AND ABUSES OF LOCAL ANESTHETICS.

By P. J. WOOLSEY, M.D., D.D.S., Battle Creek, Mich.

In justice to the local anesthetic question, I would like space in your valuable journal to say a few words.

Let us first, as practitioners, consider a few causes of diseased gums :

- 1st. Pus already formed in gums.
- 2nd. Where there is no pus but where tissues are so broken down that formation of pus is sure to follow.
- 3rd. Diseased and ragged bone around teeth.
- 4th. Poisonous drugs which have brought about diseased conditions, such as salivation caused by the abuse of calomel.
- 5th. Acquired or inherited diseases, such as syphilis, tuberculosis, etc.
- 6th. Foreign substances getting into gums after teeth have been extracted and where proper care has not been taken by patient.
- 7th. Septic conditions brought about by the use of infected instruments.
- 8th. The introduction of anesthetic into mucous membranes.

Should any of the first five conditions exist more or less trouble is liable to arise, no matter what anesthetic is used.

In our judgment there is no anæsthetic that will work perfectly on swollen gums, and if one is used the patient loses faith in the anesthetic and perhaps in the operator. It is better, therefore, to refrain from its use or else explain existing conditions to patient. In an already congested condition of the gums the introduction of any fluid can do no good and bad after effects may be looked for. It is in conditions like these that we administer nitrous oxide gas.

It is poor judgment to extract teeth when the first condition exists without first giving proper treatment, so bad after effects can generally be traced to one of the last three causes.

Of more importance than any of the causes mentioned is the lack of proper care on the part of the patient after extraction. Long rides home in the wind or rain food and other

foreign substances getting into sockets and gums are the causes of much trouble, and the dentist and his anesthetist gets "the cussing."

It is needless to the up-to-date dentist to call attention to the proper disinfection of all instruments used in or about the mouth.

The proper manipulation of the hypodermic syringe is no small matter. Get your anesthetic where you want it, keep it out of the mucous membrane, and avoid swelling and trouble. Press the finger firmly on mucous membrane at edge of gums and confine action of anesthetic where it is needed.

There are, perhaps, anesthetics on the market which in themselves cause trouble, but I firmly believe that much of the dissatisfaction with anesthetics can be traced to the causes mentioned in this article.

It is but just to mention chloretone, which, as a local anesthetic, I prize very highly. I read in your December issue a condemnation of this valuable anesthetic. I do not doubt the honesty of my professional brother from Ohio, but the bad results mentioned by him I am sure can be traced to some other cause. The presence of pathogenic microbes already existing in the oral cavity must not be forgotten.

I have used chloretone with gratifying results both in operations for tumours and cancers of the mouth and face and in the extraction of teeth.

I find chlorotone in some cases takes longer time to thoroughly benumb the tissues than some other anesthetics, so I use two formulæ, one where I am to extract several teeth and the other formula where only a few are to be taken out.

FORMULA No. 1.

To sat. sol. chlorotone add sodium chloride 1 p.c.

FORMULA No. 2.

To sat. sol. chloretone add sodium chloridi	1 p.c.
Cocaine crystals	1 p.c.
Sulphate of atropin	1/16 gr. to fluid ounce.

Ohio Dental Journal.

A METHOD OF TREATING PUTRESCENT ROOT-CANALS AND OPENING FINE AND CONSTRICTED ONES FOR STERILIZATION.

By F. T. HAYS, D.D.S., Chicago, Ills.

I desire to report my experience with a method which I have found both rapid and efficient. Driven to exasperation by the use of sulphuric acid for the above named purpose, I experimented with a view to finding something which would not corrode every instrument with which it came in contact, and would still act with sufficient rapidity in such cases and insure certainty and expedition.

I have found that nitro-hydrochloric acid, or "aqua regia," does not corrode a steel broach further than to cause a thin coating on the surface, which can be easily removed by a cuttlefish disk. And the same broach may be used to carry the medicament to canals, to be left there until termination of the treatment, without any fear that the broach may have been weakened and may break off, as is the case when H_2SO_4 is so used. In the treatment of putrescent root canals with aqua regia an effervescence is produced almost equal to that caused by hydrogen dioxide. This effervescence assists in carrying out and into the pulp chamber much of the debris lodged in the canals. At the same time an elimination of free chlorin takes place, which helps to further sterilize the canals and render innocuous any putrescent matter that may remain therein, at the same time bleaching the tissue and leaving it nice and white after thoroughly drying out. The bleaching effect of the gas enables the operator to better see the canals and more easily treat them.

I have many times opened into a dead pulp, left the canal open for a few days to drain and that soreness might subside, and at the next sitting subjected the tooth to the treatment as outlined, sealed it up tightly and left for one week without any inconvenience to the patient. Rarely do I have to treat a tooth by this method more than once thereafter.

I find that I effect a saving of much time to both the patient and myself, and I have cleaner and better canals in which to

insert a filling than results from any method heretofore described with which I am acquainted.

As for its use in fine and constricted canals, my advice is to try and be convinced of the time saved over the old method ; besides, one does not require a special broach, as is the case with H_2SO_4 .

After using any acid in canals, the residue of acid should be carefully neutralized and the canals dried thoroughly before putting a dressing in them, as this avoids the dilution of medicaments used as a dressing and assists the tissue at the apex to return to normal condition because of aseptic surroundings and absence of irritating fluids to irritate the apical tissue.

My method of procedure is this : Thoroughly exclude the surrounding tissue, preferably by means of the rubber dam ; if this is not convenient, have the assistant protect the parts with some absorbent material, thereby excluding saliva and its inevitable consequence, the carrying out over the walls and surfaces of the teeth some of the agent with which you are working, which should always be avoided when working with a corrosive. Then with a fine, smooth broach, around which have been wound a few threads of cotton, carefully and gradually work the medicament toward the apical end. Use as fine a broach and as few threads of cotton as consistent with the needs of the case, as a broach that tightly fills up the canal acts as a piston and many times forces septic material through the apical foramen and thereby excludes the possibility of its sterilization by the method outlined ; soreness and discomfort, moreover, are sure to follow.

As to any harmful disintegration of tooth structure, I have never been able to demonstrate that, and I have watched this matter closely as a clinician before reporting. But I do not get the material on the tissue except at the opening of the canal, as the smallest possible amount is quite sufficient ; and by due care it can be kept away from where it may do possible injury.

The same care and certainty is often [difficult in the use of sulphuric acid "in any degree of concentration," as with it you can not use the fine broach and cotton medium to carefully place in a fine canal ; hence the almost certainty of its spreading over the floor of the pulp chamber, there to remain until neutralized at the termination of the acid treatment, and to do more injury than need be the case when carefully following the technique of this method.

Again, I have many times used the method here advocated in the canals of anterior teeth that I intended reaming out for a Logan pin, and have tried to differentiate, in the cutting of the tissue immediately around the canal, that portion in which the acid came in actual contact, but could detect no difference so far as my sense of touch could specialize.

I have not as yet made any extensive laboratory experiments, but have used this material freely in roots of freshly extracted teeth, carefully neutralized and dried out, and on splitting open the canals have found them pure and clean, the tissue hard and dense, with noxious odours well dissipated. If by chance the agent should come in contact with the tissue in the apical region, I have found nothing more than a persistent tendency to the formation of serum, but have had no trouble from a root filled in this condition if the canals are perfectly aseptic. Of course I should treat such a case more often than suggested, and try to overcome the tendency. But we sometimes meet such cases from some other cause, and find it quite impossible to check the serumal flow when we are called upon to fill the roots, and so terminate the treatment.

As to the medicaments to be used for canal dressing, they should be soothing and antiseptic. I prefer oil of cloves, because it produces a slight anesthesia of the parts and aborts the condition described by patients as a drawing sensation which follows the use of astringents, and many times lasts for ten or twelve hours. The operator should be thoroughly familiar with the action of whatever canal medicaments he uses, and the conditions in which he should find the canal when he deems the treatment finished and proceeds to fill the canal. Much suffering can be caused by the use of powerful deodorants, which mislead the operator in terminating the treatment too quickly. I use oil of cloves for final dressings because the odour is easily dissipated in the presence of noxious gases and I am not misled, as might be the case such medicines as thymol and oil of wintergreen. Oil of cassia I have no use for under a sealed dressing.

I offer the foregoing suggestions hoping they may be of value to others under perplexing circumstances. I have no hesitation in recommending the method to the profession. If they will remember the technique and neutralize the agent when through with it, I should expect less injury from it than from any similar method and much benefit to patients who are the unfortunate possessors of fine and constricted canals.—*Dental Cosmos*.

INFILTRATION ANÆSTHESIA.

By Dr. W. LOHMANN, Berlin.

There are two efficient factors concerned in the production of infiltration anæsthesia which must be clearly differentiated from one another. The one is the physical effect of the infiltration from pressure, differences of temperature, etc., (Schleich) and the other is the chemical action of the drug employed (cocaine, eucaïne, etc.) to paralyze the sensitive structures. The distinction becomes very evident upon auto-experimentation. Let the experimenter select two similar portions of the body surface, of equal sensibility and tension. Let him then, under equal pressures, inject subcutaneously small but equal portions of a fluid as indifferent as possible, say, physiological salt solution at the body temperature, and a stronger, say 5 per cent. alpha-eucaïne solution. The former will cause no anæsthesia, or at most slight obtunding of sensibility. The latter will effect an absolute anæsthesia over an area measuring about one square centimeter (2.5 in. square) around the site of injection, beginning about one minute after the puncture, and lasting for about one hour. To obtain a complete anæsthesia with the indifferent fluid, the entire area must be tensely infiltrated; the effect appears immediately after the injection and disappears in a few minutes as the fluid becomes disseminated through the tissues and absorbed.

Such an experiment clearly demonstrates the difference between a physical anæsthesia obtained through a purely mechanical ischæmia, and the chemical action of eucaïne, which on contact paralyzes the sensitive elements. When weak, 1 per cent. eucaïne and cocaine solutions are employed, as in the Schleich solutions, the anæsthesia is effected chiefly mechanically, by the infiltration, though it is aided by the chemical factor; thus we get a combined physico-chemical action. It may be accepted as a rule, that, the stronger the solution employed, the less the amount of infiltration required to cause loss of sensibility. The duration of this combined action is greater than that of infiltration pure and simple; but it is not so great as that effected by the more concentrated chemical solutions.

The entire anæsthetic action depends upon the intensity

and duration of the effect, and the extent of surface influenced. With indifferent and weak solutions this latter area does not exceed the visible limits of the infiltration; it increases in extent with increased concentration of the chemical solutions. This can be demonstrated by the injection of small but equal quantities of a $\frac{1}{2}$ per cent, 2 per cent, 5 per cent and 10 per cent cocaine or eucaine solution into various similar portions of the body. During the first few minutes after the injection not only does a hemi-anæsthetic zone form around the infiltrated area, but the anæsthetic field itself grows larger in accordance with the concentration of the solution employed. This growth varies in the different tissues independently of their structure and consequent resistance. It depends more especially upon the strength of the solutions and the consequent diffusion and osmosis between the infiltration and the tissue fluids, the more concentrated the injection, the greater the quantity of cocaine or eucaine to reach the tissues beyond the infiltrated area and to exert their characteristic effect. The duration of the anæsthesia more especially is dependent upon the strength of the injected solution. With an indifferent solution the effect ends with the diffusion and absorption of the injected material. The anæsthetic action of a $\frac{1}{2}$ per cent, 1 per cent or a 2 per cent alpha-eucaine lasts about half an hour, that of a 3 per cent or 5 per cent alpha-eucaine solution a full hour. For absolute anæsthesia a 2 per cent eucaine or cocaine solution at least is required; this is strong enough to paralyze the sensibility of the nerve elements on contact.

In the practical employment of infiltration anæsthesia in surgery it is advisable to rely as much as possible upon chemical action, and to regard the injection itself merely as the means by which that can be brought into effect. Schleich's method depends upon the infiltration itself as the effective agent, and lays the greatest possible stress upon its physical action. Its introduction was an epoch making event in the history of local anæsthesia, since it opened a wide field for its employment; and it should be employed everywhere where the chemical action of a paralyzing drug cannot be used without danger. As regards cocaine, stronger solutions can only be employed in small quantities and hence for limited operations. But relatively non-poisonous local anæsthetics, such as eucaine, can be used in greater concentration, and will be generally employed. The most suitable solutions will be such as develop the best anæsthetic effects as

regards intensity, duration and extent, without doing any harm. And they should be used with comparatively small quantities of fluid, so as to reduce the infiltration as much as possible. The less the tissues of the field of operation are distended by the injected fluid, and the less the tissues are mechanically irritated, the less will be the amount of the after pain, which is by no means completely obviated by the morphine that is found in the Schleich solutions.

Of the two eucaine preparations (alpha and beta-eucaine hydro-chlorate) beta-eucaine is to be preferred. Alpha-eucaine is indeed more efficacious, but it is more poisonous than beta-eucaine, though less so than cocaine, but it has been designated an "anæstheticum dolorosum" by Liebreich. Both eucaines are distinguished from cocaine by being readily sterilizable and preservable in solution for months. Beta-eucaine in stronger solutions, up to 5 per cent, is by far the best and most harmless infiltration anæsthetic known to surgery. It is permanently soluble in this concentration, but it crystallizes out of stronger, 5 to 10 per cent. solutions, dissolving only on the application of heat. The very strong solutions are not to be recommended, since in some cases they cause a reactive inflammation of the skin and tissues. The most important property that distinguishes beta-cocaine from both cocaine and alpha-cocaine is its far weaker poisonous effect.

Toxicologic experiments upon rabbits show that about 2 grams (30.8 grains) of a 5 per cent cocaine solution (0.1 gram $1\frac{1}{2}$ grains of the drug) per kilogram (2 1-5 pound) of body weight are sufficient to cause death. Of an equally concentrated beta-eucaine solution 10 grams (154 grains), being 0.5 gram (7.7 grains) of the drug are required for a like effect. The same concentration and dose that in a cocaine or alpha-eucaine solution would be fatal, does not cause the slightest symptoms of poisoning when beta-cocaine is employed. Amounts equalling 0.1 gram ($1\frac{1}{2}$ grains) of beta-eucaine per kilogram (2 1-5 pounds) of body weight may be injected without the slightest apprehension. And this would equal a quantity which is never even most distinctly approached in infiltration anæsthesia, even when solutions up to 5 per cent in strength are employed.

Beta-cocaine is equal to cocaine in anæsthetic power, and perhaps even superior to it. The tonic effect upon the vessels which is claimed as an advantage for cocaine in infiltration anæsthesia (Schleich) is probably of no importance.

Beta-eucaine solutions of 4 per cent to 5 per cent are most suitable for infiltration anæsthesia. They may be used without the least danger in the quantities required for the operations suited to the method. The 2 per cent solutions recommended by Rêclus do induce anæsthesia, but are not so effective as to duration and extent. Absolute anæsthesia for about three-quarters of an hour can be gotten with a 5 per cent solution without causing much oedema, and by a very moderate infiltration of the tissues and a contract paralysis of the sensitive elements. Thus, with comparatively small quantities of fluids, and a moderate infiltration, a better and more persistent anæsthesia can be obtained than with the Schleich solutions. This is a valuable property, and permits of a simplification of the necessary technique, as we shall show below.

The site of injection, more especially in very sensitive regions, has been anæsthetised in the usual manner with ethyl chloride. The needle is then introduced and slowly advanced subcutaneously over the field of operation, small quantities of the fluid being injected at each step. Immediately thereafter or if necessary during the operation, the different layers of tissue are injected one by one to the depth that may be necessary. In bone operations the injections must extend to the periosteum. Nerve trunks are to be avoided as far as possible. After the entire operative field has been thus very moderately infiltrated, an interval of a few minutes is allowed to pass; and then work can be done without pain for about three-quarters of an hour. More especially in hyperæsthetic and inflamed tissues, and very sensitive localities, the injections should be made very carefully and slowly, and here the marked anesthetic effects of the concentrated beta-eucaine solutions with their small quantities of fluids and consequently moderate infiltration of the tissues are of especial advantage, in view of the tension and hyperæsthesia that already exists.

Here again it is not necessary to follow Schleich's technique closely, making the primary and then the secondary infiltration wheels with multiple punctures. The anesthesia may be effected more simply as follows: The needle is inserted as usual, at one end of the line of incision, and in the healthy skin beyond the hyperæsthetic area. A minimum quantity, about 1-10 gram ($1\frac{1}{2}$ grains) of the eucaine solution is injected; then, after a few seconds, the needle is pushed on without causing any pain and a further quantity injected.

This is continued until the needle has entered the subcutaneous tissue to the hilt. After withdrawing the needle and refilling the syringe, the process is recommenced at the point last anesthetised and this is continued until the entire field of operation is slightly infiltrated. The deeper parts of the inflamed tissues can be injected through the same punctures; pus cavities are, of course, to be avoided as much as possible. In many cases the eucaïne injection causes a little burning after pain a few hours later, which may be removed or avoided entirely by the employment of a moist antiseptic dressing.

When correctly used the 2 per cent. to 5 per cent. beta-eucaïne solution, in quantities entirely innocuous and much smaller than those used by Schleich, effect a long continued and perfectly satisfactory anesthesia. It may be said with truth that beta-eucaïne, even if not entirely free from all faults, is the very best material at our disposal for infiltration anesthesia. In strong solution it is applicable everywhere where the Schleich solutions can be used. The question as to whether mechanical infiltration or chemical action is preferable for infiltration anesthesia seems to be decided in favour of the latter.—*Items of Interest.*

CONTINUOUS GUM WORK—A CRITICISM.

By L. P. HASKELL, Chicago, Ill.

I have found it the strongest and most durable work made, but consider my success owing to my effort to make the work strong, and see that it is properly articulated so as to have no undue strain. I use nothing thinner than 28 gauge; double posterior margin about one-quarter inch to strengthen; to leave a thin margin, to allow for change of margin if needed, and with edge turned up a very little to protect edge of porcelain. The wire on outer rim of plate soldered edge-wise, and of soft platinum as it is more easily adjusted. The continuous backing, in three pieces, lapped back of cuspids, with foot piece so as to adhere firmly to the plate. As the pure gold, very thin, is placed beneath the foot-piece, it cannot flow over the plate. A small piece is placed under each pin and remains there. As I use compressed air in soldering, can give sufficient heat for plate to absorb the gold if there is excess. Now this process is simple and effectual,

except in very rare cases and peculiar conditions, and then some additional strengthening.

He says, after wiring, try the plate in the mouth, and if sprung, place on the die and reswage. Why try it in the mouth? If it had been swaged on an unshrinkable die, it would fit the plaster cast, and so place it there to see if it had sprung, and if so is easily pressed back in place with the fingers, providing the wire is not a stiff, incorrigible one.

One of the advantages of the use of Babbit metal is in the non-shrinkage, so that the plate when swaged can be referred back to the plaster cast, and as that is presumed to represent the jaw, and the plate fits it snugly, I find no trouble in its fitting the jaw. And this is my constant experience, confining myself to artificial dentures.

I never have occasion to use soap in cleaning the case after soldering, but do use the brush which has had soap on it, yet never discovered any bad results.—*Ohio Dental Journal*.

MAKING THE MATRIX FOR A SEAMLESS CROWN.

By J. H. PROTHERO, D.D.S., Chicago, Ill.

In the past few years, more especially in the last two or three, considerable interest has been manifested in the construction of crowns by the seamless method.

It is claimed by those most enthusiastic on this subject that more æsthetic results can be obtained by this system than in any other way.

I am not over enthusiastic myself, nor do I believe it is the *only method*, as some claim, for producing artistic crowns.

Well fitting, serviceable and æsthetic crowns have been and are being made by the band and swaged cusp system that are doing as good service and look as well or better than the average seamless crown. I think, however, that those who have had experience with both methods will admit that each one has its particular points of value and place where it can be used to better advantage than the other.

It occurs to me that the seamless system is most valuable in those cases of porcelain bridge-work where metal crowns

are used as abutments or piers. Platinum crowns, constructed after this method, can be run through the furnace any number of times, without injury, since there are no joints to open.

The prosthetist who attempts to make a seamless crown must be able to carve the tooth he desires to reproduce. If unable to do this, some other method, perhaps, will enable him to secure better results. Often those who can carve a properly shaped plaster model have felt that the seamless method was unreliable, because of the difficulty met with in securing an accurate counterdie in which to swage the crown.

Porosity of the sides and bottom of the matrix is a defect most liable to occur in casting the fusible metal. This is due to the presence of moisture or gases in the plaster model over which the matrix is formed and which cannot escape on account of the rapid crystallization of the metal. If the fusible alloy could be kept in a molten condition a sufficient time to permit the moisture to make its escape through the metal the matrix would be perfect. This, however, is not feasible with the ordinary appliances in use.

The usual method of depriving the plaster of moisture is to heat it in the flame of a Bunsen burner, or alcohol lamp, but this is seldom successful, as there is no way of ascertaining when the model is in proper condition to receive the metal.

Another method, designed to aid the foregoing, is to drill one or two very small holes entirely through the model, extending from occlusal to gingival ends, and of punching corresponding holes through the base of mouldine on which the model rests, as an outlet for the steam formed during the pouring of the counterdie. This, however, enables only a portion of the moisture to escape, and, as a consequence, the walls of the matrix will often be defective.

Still another plan is to reproduce the model in mouldine, instead of plaster, and pour the matrix over that, but the chief objection to this method is the extra time required for so much detail work, and the liability of the model becoming distorted in handling before the matrix is secured.

The following plan is now offered to you for consideration, and after a trial of almost a year I feel justified in saying that if the details are correctly carried out a perfect matrix can be secured in more than 95 per cent. of cases. It is presumed that all of you are familiar with the manner of constructing the plaster model of the tooth that is to be reproduced in

platinum or gold, so this part of the method will receive no consideration.

The model, having been constructed and carved to proper shape, is now ready to dry out. The metal is placed in the ladle and melted, the plaster crown grasped in a pair of long handled wire pliers that close automatically and pressed into it until entirely immersed. A ladle of small diameter but quite deep is used in order that the metal may entirely cover the crown.

When first introduced, considerable bubbling occurs, owing to the rapid escape of the steam. Vibration is distinctly felt in the plier handles and also in the ladle handle, as long as any moisture remains. As soon as this ceases it is a certain indication that the plaster is dry and free from all moisture or gas that might cause trouble in casting. Three to five minutes' time is usually sufficient to bring about this condition and ensure certain results.

It is now removed from the ladle and placed in position on base on which it is to rest while the matrix is being cast. If set on mouldine care should be taken that the cervical end is not pressed into the clay, as this would reduce the depth of the matrix and consequently shorten the crown.

A better method is to shape the mouldine with a curve corresponding to the gingival curve of the band from buccal to lingual and cover it over with a sheet of thin paper. A small hole can be drilled in the cervical end of the plaster crown, into which a peg is fitted, the outer end projecting an eighth of an inch or so. The crown is now pressed down on the mouldine, the peg passing through the paper and into the clay, and acting as an anchorage to hold the crown firmly to its base. If the model is not held down firmly, the metal, owing to its greater specific gravity, will displace it and it will float to the surface. The object in using the paper over the surface of the mouldine is to prevent the metal from coming in contact with it, as the glycerine with which the clay is mixed, has more or less affinity for moisture and readily takes it up from the air, and if any is present on the surface against which the metal is poured the result will probably be a faulty matrix. By covering the mouldine and attaching the crown in the manner just described, error from this source is obviated.

The metal ring is now set over the pattern crown, and the strips of pasteboard inserted in the ring slots, the metal allowed to cool somewhat, or until it begins to thicken

slightly, and is then poured upon the occlusal surface of the crown and allowed to trickle slowly over the sides until the matrix is of sufficient thickness. The metal should be poured as cool as possible and yet be sufficiently plastic to copy accurately the surface over which it is cast. When set it is knocked out of the ring, cooled, and split apart, and the pattern removed. As before stated, a perfect matrix can be secured in almost every instance, if the details have been carefully attended to.

By a slight modification, this method is applicable to the construction of counterdies for ordinary swaged cusp work.

The gold band, upon which has been carved the plaster cusps, is covered with a coating of whiting and alcohol, to protect it from contamination by the baser metal. It is immersed in the manner before described, and held under the surface until all moisture is driven off, then set into the clay about to the line of junction of the band with cusp, the ring placed in position, and the matrix poured.

A word of caution is necessary at this point. If any of the whiting, covering the band, should become displaced, the baser metal immediately unites with the gold to such an extent that a new band will frequently be required. The whiting is very easily disturbed, the slightest touch being all that is required to dislodge it, so that too much care cannot be exercised to avoid displacing it in handling the crown in the molten metal.

I have been experimenting with a varnish that would be easy to apply and more difficult to remove than the whiting, but up to the present time have nothing of special value to offer. An idea occurred to me the other day that may overcome the difficulty. This is to cover the entire band, after the cusp is carved with plaster so as to protect it perfectly from the metal.

This covering need not be more than two millimeters thick, and it will in no way interfere with the escape of the moisture contained inside the band. It may, perhaps, require a trifle longer time to prepare the model for casting, since it is somewhat more bulky, but that is the only objection to its use.

When dry, the plaster covering can be removed, the case embedded in mouldine in the usual way and the matrix cast.

Most excellent counterdies of uniform density throughout, in which the finest lines and the sharpest cusps can be copied, may be produced after this method, if good judgment and care be exercised in the various steps.—*Dental Review*.

Dental News.

ACTION BY A DENTIST.

Hugh Love, registered dental surgeon, 170, Seven Sisters' Road, Holloway, sought, in the Clerkenwell County Court, to recover from G. Cleverley, manager of the Great Northern Cemetery, Barnet Lane, New Southgate, the sum of £6 6s. for dental work executed for the defendant.

Plaintiff's case was conducted by Mr. Siggins, and the defendant was represented by Mr. Popham.

A sum of £3 3s. had been paid by the defendant into Court in satisfaction of the claim.

Evidence was given by the plaintiff as to making a partial set for the defendant, re-making an upper set, and other repairs; and in every respect his charges were reasonable.

Mr. Popham submitted in defence that the amount paid into Court was sufficient to cover all the work which the plaintiff had done.

The Judge said it was a mere question of amount between the parties, and he thought the justice of the matter would be met by giving the plaintiff a verdict for five guineas, including the amount paid into Court.

NEWCASTLE DENTAL HOSPITAL.

The sixth annual general meeting of the Governors of the Newcastle Dental Hospital was held in the Board Room of the hospital, Nelson Street, the Mayor presiding.

The Committee of Management, in their report for the year 1900, stated that during the year 2,650 patients were treated

making a total of 15,432 since the opening of the hospital. The arrangement for the periodical examination of the children at the Industrial Schools has been continued throughout the past year. At the end of the year there was a credit balance of £36 3s. 3d., being a decrease of £7 14s. as compared with the credit balance at the beginning of the year. The committee regretted to report a further falling of in subscriptions, and again commended the claims of the hospital to the attention of the charitable public. The committee would remind subscribers that an annual subscription of £1 1s. entitles a subscriber to recommend patients for four special operations in the course of the year. The committee had pleasure in acknowledging contributions of £20 13 11d. from the Hospital Sunday Fund, and £5 from the workmen of Messrs. C. S. Swan and Hunter, Limited.

The Mayor, in moving the adoption of the report and statement of accounts, expressed his warm recognition of the great value of the institution as an instrument for the alleviation of human suffering. In the past the Anglo Saxon race had paid far too little attention to dental surgery, upon which the general bodily health and strength so much depended.

Mr. F. Marshall, seconding a vote of thanks to the honorary dental surgeons stated that their dental school was now accepted by London, Edinburgh, and Dublin as qualifying students to obtain their degrees in dental surgery at those Universities.

GLASGOW DENTAL HOSPITAL.

The sixteenth annual meeting of subscribers to the Glasgow Dental Hospital was held in the Religious Institution Rooms, Buchanan Street, Councillor John F. Miller presided.

Mr. D. M. Alexander, secretary, submitted the annual report by the directors. It stated that the record of the past year, like that of its predecessors, had been one of progress. The number of patients treated at the hospital had increased from 7248 in 1899 to 7308 during 1900. There was a slight diminution in the number of operations. These numbered 9083 as compared with 9099 during last year.

The fact, however, that there were fewer operations per patient with an increase in the number of patients only showed that the benefits of the hospital had been extended to a greater number of people. One feature of the hospital work, which had marked previous reports, also distinguished this, namely, the increasing proportion of operations for the preservation of the teeth as compared with extractions. The extractions had increased by 91, the figures being 5730 as against 5821 for the previous year; while the preservative operations had decreased by 75—from 3278 to 3553. A significant testimony to the excellence of the Staff was the growing popularity of the Dental School attached to the hospital. There were now 26 students on the register, being the largest number of any year. The income from students' fees for the last year was £245 as against £211 1s. for the previous year. While the growing prosperity of the hospital and school were most gratifying, the directors felt the responsibility of providing increased accommodation for carrying on the work. Although every part of available space was utilized, the staff was hampered by the limited area. The directors had endeavoured to relieve the pressure by adding an additional part of the flat on which the hospital was situated. They felt, however, that this was only a temporary relief, and that by the end of the present lease, two years hence, if not earlier, they would be obliged to secure premises more central in position, more suitable in character, and more ample in accommodation to meet the expansion of the hospital work. The directors were encouraged in the hope that they would be able to carry out their views as to premises by the satisfactory condition of the finance. They began the year with a credit balance of £558 7s. 6d., and the treasurer's statement closed with a balance in the bank of £596 15s. 9d. The directors regretted to record another slight shrinkage in the public subscriptions, which this year amounted to £72 5s. as compared with £75 13s. 6d. last year. This was rendered more significant by the fact that there had been a gradual ebbing of public support over a period of years. The directors felt disappointed that, as the evidence of the public importance of the hospital was growing from year to year, the public support of it should diminish in inverse proportion. If the hospital was to be maintained on a scale adequate to the proved wants of our great city, the directors felt they must face larger financial responsibility, and they could only conclude by expressing the hope that

the just recognition which the people of Glasgow had in the past given to the claims of its charities would, in the future, be more adequately given to the claims of the Dental Hospital.

The Chairman moved the adoption of the report and financial statement. Mr. Robert Wilson seconded the motion, which was then adopted.

After the election of directors and auditors the meeting was brought to a close with a vote of thanks to the Chairman for presiding.

EDINBURGH DENTAL HOSPITAL.

The ninth annual general meeting of the Edinburgh Dental Hospital and School was held at the rooms, 31, Chambers Street. Mr. Guy, the Dean, presiding.

The Chairman said that in its capacity as a hospital, the Edinburgh Dental Hospital relieved a good deal of suffering that would otherwise go unrelieved. The contributions from the general public did not exceed £40 per annum. The expenditure was almost entirely defrayed out of fees paid by the students, and as far as the Hospital was concerned, the work of a staff of nearly thirty was of an honorary nature.

The secretary then submitted his report, in which it was noted that the use of gas and ether had largely superseded the administration of chloroform, which was now only given in special cases. The number of students on the roll was 47. The debt of the institution was being gradually reduced, although it stood at £1334 5s. 7d. The Bowman Macleod Memorial Committee had handed the incorporation the sum of £235 7s. 8d. and in return for that "The Bowman Macleod Bursary" had been formed.

The Treasurer, in submitting his report, said that the income for 1900 exceeded that of 1899 by £86. The expenditure for last year, which amounted to £630 16s. 4d., was a decrease of £44 compared with 1899. The income for the year was £1274, leaving a balance of £443, which had gone to reduce the debt.

Treasurer Cranston moved the adoption of the report, which was seconded by Mr. Hepburn. The Chairman, in thanking Mr. Cranston for his presence, said that as a colonel of Volunteers, Treasurer Cranston might make it possible that before Volunteers were admitted, say, to the Queen's Brigade, that their teeth be certified in good order. He knew of many Reservists who got Reserve pay for a considerable time, but who on medical examination were rejected on account of bad teeth. Treasurer Cranston said he was doubtful about examining the teeth of the Queen's. (Laughter.) The last camp they had, he never found such excellent eaters. (Laughter.) It was an admirable idea to examine the teeth of the men, but he did not want their appetites to increase. (Laughter.) They nearly ate them from house and home in the open air at the last camp. (Laughter.) He then formally moved a vote of thanks to the chairman.

LIVERPOOL DENTAL HOSPITAL.

At a special meeting of the committee, Sir James Poole was re-appointed chairman of the institution, and Dr. W. H. Waite vice-chairman for the ensuing year.

During the past year 20,976 patients had been treated. The year was commenced with a debt of £10 1 4 and there was a balance in hand of 2s. 11d. A vote of thanks to the chairman and officers concluded the meeting.

THE LARGEST TUSK.

Landsberger, Humble & Co. have just sold to the British Museum (Natural History Department, South Kensington), for £350 an elephant's tusk measuring 10 ft. 2½ in. and weighing 226½ lbs.

This is said to be the largest ivory tusk ever known.

UNIVERSITY OF BIRMINGHAM.

The Dental Museum of the University has just received a valuable addition. Councillor Bowater having presented a collection of casts of fossil fish, reptiles, and mammals to illustrate the development of teeth in geological time.

BRIGHTON DENTAL HOSPITAL.

The Brighton, Hove, and Preston Dental Hospital had its annual meeting recently.

The total number of cases attended to in the past year was 3,021, and of these 1,319 were males and 1,702 females 966 of the total number of patients admitted being children under 14 years of age. The large number of 554 had gas administered, and under its influence 1,495 extractions were made, a convincing proof that the administrations were necessary. The number of fillings, of which there were 159, exceeded those of the previous year by 22. Fillings would form a more important class of the operations if some of the patients would only submit to them, whereas, in very many instances, the loss of a tooth by having it extracted is preferred to devoting time to having it properly stopped.

The income had again been exceeded by the expenditure, increasing the deficit by about £17; and in pleading for greater financial assistance the Committee thanked their old and new supporters. One gratifying feature was the gradual increase in the number of firms whose employees included the Dental Hospital in the institutions receiving a share of their charity contribution boxes.

The Committee had, with the deepest sorrow, to record the death of Mr. J. H. Redman, one of the Consulting Dental Surgeons, who had been associated with the Institution practically since its formation. They thanked the several gentlemen who formed the Medical Staff,—Mr. William J. Stephens, L.R.C.P., and Dr. E. C. Maguire, the Administrators of Anæsthetics; Mr. S. Read, L.D.S., Mr. A. Read, L.D.S.,

Mr. F. V. Richardson, L.D.S., Mr. A. B. Stoner, L.D.S., Mr. W. R. Wood, L.R.C.P., M.R.C.S., L.D.S., Mr. C. E. Brown, L.D.S., Mr. F. Mühlenkamp, L.D.S., Mr. A. Leeming, L.D.S., and Mr. G. B. Tasker, L.D.S., the Dental Surgeons, for their gratuitous services. They also thanked Mr. John Wood, L.D.S., Hon. Treasurer, Mr. J. R. Gwatkin, Hon. Secretary, and Mr. F. J. Bevis, Hon. Solicitor, for the great interest they have always shown and continued to show in the welfare of the Institution.

DENTISTRY.

At the Whitechapel Board of Guardians a letter was read from the St. Charles Schools, Brentwood, asking for payment by the Guardians of 6d. per quarter for each child therein maintained chargeable to the union for dentistry.

Mr. Perez was opposed to the granting of this system of doles, and would rather that the charge for maintenance were increased, if it was not at present sufficiently large enough to cover all expenses.

Father Murphy and the Rev. J. E. Hand supported the grant, and after a long discussion, it was decided to grant the request.

ROTHERHAM GUARDIANS.

Mr. Dickenson stated that at the last Board Meeting he gave notice of his intention to move that the services of the dentist be dispensed with, on account of the charges. Since that time the dentist had called upon him, and made such offers that he (Mr. Dickinson) felt quite satisfied, and he believed the House Committee had a similar feeling. The motive for bringing forward the resolution was based on economical grounds, because he considered the charges too

much for the work done. When he told the dentist that that was his sole reason, he seemed rather surprised—he did not think they studied economy on these public boards. (Laughter.) He (Mr. Dickinson), however, held that the time had come when that Board, at any rate, should study economy.

Mr. Booth inquired the cost of the dental charges.

Mr. Dickinson stated that there was a retaining fee of eight guineas. The charges were considered rather excessive. He understood the dentist was willing to give up the retaining fees.

Eventually Mr. Dickinson withdrew his notice of motion.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following gentlemen passed the Preliminary Science Examination for the Licence in Dental Surgery at the quarterly meeting of the examiners:—

John Joseph Armitage, North Polytechnic, Institute, Holloway ; Francis William Bartle, City of London College ; Tom Treherne Barton, Charing Cross Hospital ; Horace Stanley Chandler and Horace Croot, Guy's Hospital ; Alfred Braithwaite Charlick, School of Science, Technology, and Art, Liverpool ; William Alexander Clements, Municipal Technical School, Manchester ; R. Wilfred Cross, Holt School of Science, Birkenhead ; Gerald Lang Dymott, Birkbeck Literary and Scientific Institute ; Archibald Roland Durant, Edward Farrant, Archibald Louis George, and Albert Goodey, Guy's Hospital ; Arthur Barber Hawkes and Alfred John Higson, Charing Cross Hospital ; William Hopton and Alfred Henry Mace, Owens College, Manchester ; Harold Whightman Jones, Guy's Hospital ; Bannar Harry Martin and Rupert Josiah Messent, Municipal Technical School, Brighton ; Percy Norman Owen, Mason University College, Birmingham ; Charles Lucey Palmer, Reading College ; Charles Cook Pooley, Higher Grade Board School, Norwich ; Frank Ernest Probyn and Percy Hartley Rodgers, Charing Cross Hospital ; Leonard Urban Ransford Norman Bowden

Soper, William Stuart Stevens, and Thomas Vernon, Guy's Hospital; Ernest Le Mesurier Spurgin, Municipal Technical School, Brighton; Attilio Regolo Setacci, Polytechnic Institute, Regent Street, and Joseph Hindle Westmorland, Owens College, Manchester.

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2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
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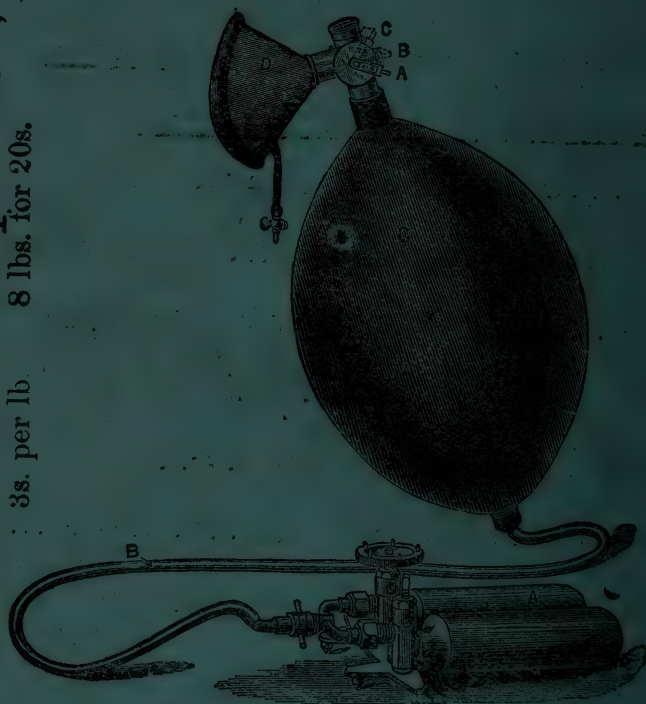
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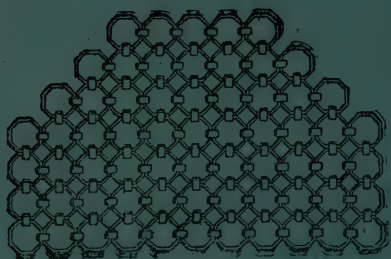
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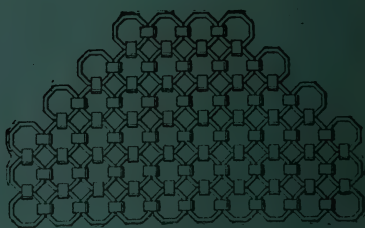
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- As Improver. 5 years' experience. Good references. Salary 30/-. Apply "A. C.," The Steyne, Worthing.
- As Operating Assistant. Part mechanically not objected to. 14 years' experience. Permanency desired. "Alpha," 16, Batt Street, Sheffield.
- As Mechanic. First-class plate worker and all-round man. Over 20 years' experience. On Ash's register. Can be well recommended. Moderate salary. Whole or part time. London only. "R.," 87, Loftus Road, Shepherd's Bush, W.

WANTED. Managing Assistant. Registered. Must be thoroughly practical in all surgery work. All particulars to "Manager," c/o Segg & Co., 289, Regent Street, W.

SPLENDID Opportunity. Small high class Dental Practice for Sale. Fashionable Spa. Good house. Easy terms Apply "Bodega," Station Parade, Kew Gardens, London.

A GENTLEMAN, L.D.S., aged 28, married, desires to purchase a good class Partnership or a Practice. Can invest up to a £1000. Address "J. L.," c/o Segg & Co., 289, Regent Street, W.

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WANTED a steady man, a very neat vulcanite worker. No objection to a young man just out of apprenticeship. Permanent situation with prospects of promotion to an efficient person. Hours 9 till 6. Beautiful locality. Jones, Craig, Owen, Bangor, Wales.

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WANTED a thoroughly reliable all-round man of gentlemanly appearance and address, capable of taking charge during principal's absence. Must be a good mechanic and quick. Apply "H.," c/o Segg & Co., 289, Regent Street, W.

EXCELLENT opportunity for L.D.S. Practice for Sale
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FOR SALE. First class Practice on South Coast. Cash returns nearly £1000 for some years. No objection to short term Partnership. Address "A. Z.," c/o The Dental Manufacturing Company Lexington Street, Golden Square.

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A SMALL Suburban Dental Practice for Sale. Established 7 years. Main thoroughfare 5 miles from Hyde Park Corner, suitable as an auxiliary to Town Practice. Well appointed house, electric light, large garden and stables. Rent £55. Write "Oral," c/o The Dental Manufacturing Co., Lexington Street, W.

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DENTAL Practice. Good class suburb. Immediate Disposal, owing to breakdown of health. Premium small. All latest dental fittings perfectly new to be disposed of at valuation. Very desirable situation for gentleman recently qualified. Replies "4," c/o Corbould Ellis Eosy, 14, Clements Lane, London, E.C.

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The SUMMER SESSION, 1901, will commence on WEDNESDAY, May 1st.

Dental Anatomy and Physiology (Human and Comparative)—CHARLES S. TOMES, F.R.S., M.A. Oxon., F.R.O.S., L.D.S., on Tuesdays and Thursdays, at 5 p.m. (Winter.) (Demonstrator—A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S.)

Dental Surgery and Pathology—WILLIAM HERN, M.R.C.S., L.D.S., on Tuesdays and Fridays, at 5.30 p.m. (Summer.) (Demonstrator—R. HERSCHELL, L.D.S.)

Mechanical Dentistry—E. LLOYD-WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., L.S.A., on Wednesdays at 5.30 p.m. (Winter.)

Metallurgy in its application to Dental Purposes—Dr. FORSTER MORLEY, M.A., F.I.C., F.C.S., on Thursdays at 5 p.m. (Winter.) (Demonstrator—PERCY RICHARDS, F.I.C., F.C.S.)

The Hospital is open both morning and afternoon.

During the Sessions, the Surgeons of the day will give demonstrations at stated hours.

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The Saunders and Walker Scholarships of £20 per annum each, and prizes are open for competition.

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The Calendar and further particulars will be sent on application to—

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Charing Cross Hospital Medical School.

The SUMMER SESSION, 1901, will commence on Wednesday, May 1st.

The Livingstone Scholarship, (100 guineas,) The Huxley Scholarship, (55 guineas,) and six other Entrance Scholarships, total value £550, are awarded annually.

Two Scholarships of the value of 60 guineas each are reserved for Students of Oxford, Cambridge, or London Universities.

Students who join in summer have the same privileges, as regards Scholarships, etc., as students joining in October of the same year.

FEES.—For the five years' curriculum of study required by the various Examining Bodies and for hospital practice, 110 guineas in one sum, or 121 guineas in five instalments.

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CHARING CROSS HOSPITAL is within three minutes' walk of the Dental Hospital of London, and the hours of lectures are arranged to suit the convenience of both General and Dental Students.

The Hospital and School are situated within two minutes of both Charing Cross Stations, and the Athletic Ground at Eltham can be reached within half an hour from Charing Cross.

THE SCHOOL PROSPECTUS, containing full information concerning the classes, prizes, and all other arrangements connected with the Medical School will be sent on application to the DEAN, Chandos Street, Strand, W.C.

HERBERT F. WATERHOUSE, Dean.

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Copies of Regulations for the Fellowship Licence, and Licence in Dental Surgery, containing dates of Examinations, may be had on application to the Clerk of the College,

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Other large rooms are arranged as a Mechanical Laboratory, Special Demonstration Room, Students' Common Room, &c.

There are also a Metallurgical Laboratory, Library and Museum. The Waiting Rooms, Extraction Rooms, and Lecture Hall are on the Ground Floor

The Building is lighted throughout by electricity, and here is also a current for motors in the Stopping Room.

Each Student on entering the School passes through a preliminary course under the care of a Demonstrator, and all the Members of the Staff to take part in Chair-side Teaching. The Medical Tutors assist Students before each examination of the R.C.S.

There is abundance of clinical material, and every opportunity is afforded for diligent students to make the 150 foil fillings which the School regulations require. The Staff aim at rendering the Course of Instruction thorough and practical, and the success attained at the final examinations is some evidence that their efforts are not altogether without result.

The Calendar, containing full information as to Lectures, Fees, Prizes, and an ENTRANCE EXHIBITION of £15, will be sent on application.

SIDNEY SPOKES, DEAN.

University College, Liverpool

SCHOOL OF DENTAL SURGERY.

The SUMMER SESSION commences on MAY 1st.

LECTURES IN THE SCHOOL.

- Anatomy*—Professor A. M. PATERSON, M.D.
Physiology—Professor C. S. SHERRINGTON M.A., M.D., F.R.S.
Dental Anatomy and Physiology—Professor F. T. PAUL, F.R.C.S.
Dental Histology—Professor C. SHERRINGTON, M.A., M.D., F.R.S.
Dental Surgery—E. J. M. PHILLIPS, M.R.C.S., L.R.C.P., L.D.S.
Dental Mechanics—E. A. COUNCELL, L.D.S. Eng.
Dental Metallurgy—T. L. BAILEY, Ph.D.
Dental Histology—Professor SHERRINGTON.
Chemistry—Professor J. CAMPBELL BROWN, D.Sc., F.I.C.
Materia Medica—Professor W. CARTER, M.D., LL.B., F.R.C.P.
Surgery—Professor RUSHTON PARKER, M.B., B.S., F.R.C.S.
Clinical Surgery—Professors SIR W. MITCHELL BANKS, M.D., F.R.C.S.,
 RUSHTON PARKER, M.B., B.S., F.R.C.S., F. T. PAUL, F.R.C.S.
Dental Pathology—Professor R. W. BOYCE, M.B.
Medicine—Professor T. R. GLYNN, M.D., F.C.R.P.

HOSPITAL STAFF.

- Consulting Physician*—T. R. GLYNN, M.D., F.R.C.P.
Consulting Surgeon—FRANK T. PAUL, F.R.C.S.
Consulting Dental Surgeons—C. ALDER, L.D.S., H. C. QUINBY, L.D.S.,
 W. H. WAITE, D.D.S.
Honorary Dental Surgeons—R. EDWARDS, M.R.C.S., L.D.S. Eng.
 W. H. GILMOUR, L.D.S. Eng., J. W. LLOYD, M.R.C.S., L.R.C.P., L.D.S. Eng.,
 E. H. MOUNTFORD, L.D.S. Eng., J. P. ROBERTS, L.D.S. Edin.,
 J. TINDALL, L.D.S., LEWIS OSBORN, L.D.S. Eng.
Assistant Honorary Dental Surgeons—J. A. WOODS, L.D.S. Eng.,
 A. DRAKE, L.D.S. Eng., J. W. SKAE, L.D.S. Eng., J. W. TOMLINSON,
 L.D.S. Eng. H. W. P. BENNETTE, L.D.S.
Demonstrator of Operative Dental Surgery—H. W. P. BENNETTE,
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Honorary Anæsthetists—F. W. BAILEY, M.R.C.S., L.R.C.P.
 F. T. MARSHALL, M.B., M.Ch. Vich., L.S.A. Lond.
House Surgeon—T. H. BARLOW, L.D.S. Eng.
Assistant House Surgeons—T. MCBREEN, B. BENNETTE.
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Warden—W. H. GILMOUR, L.D.S. Eng.

The Liverpool Dental Hospital, Mount Pleasant, founded in the year 1864, is conveniently situated within five minutes' walk of University College, with which the Dental School is now affiliated.

Every facility is afforded to Students who are anxious to acquire proficiency in Dental Surgery. Over 23,000 patients were treated during last year.

At the Hospital an additional Operating Room was constructed five years ago, capable of holding fifty operating chairs. Particular attention has been paid to the ventilation and lighting of this room, which is acknowledged to be one of the finest in the Kingdom.

A new Mechanical Laboratory has been recently built and placed in charge of a skilled mechanic, under the supervision of the Warden of the Hospital. It is well-lighted by electricity, and is completely equipped with not only the ordinary fittings of a dental workshop, but all useful modern accessories as well.

Comfortable lodgings, at moderate cost, can be obtained near the Hospital and College.

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Fees.—Two years' Dental Hospital £21; 6 months Dental Hospital £7 7s.; 3 months Dental Hospital £4 4s.; Two Winters Royal Infirmary £10 10s. Composition payment at the College, £50 in two instalments; Apprenticeship premium £105.

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A. M. PATERSON, M.D., Dean.

THE VICTORIA DENTAL HOSPITAL, ALL SAINTS, MANCHESTER.

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Consulting Dental Surgeon—H. CAMPION, M.R.C.S.
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EDWARD P. COLLETT, L.D.S.	F. W. MINSHALL, L.D.S.
J. W. DUNKERLEY, L.D.S.	I. RENSCHAW, L.D.S.
W. DYKES, L.D.S.	WM. SIMMS, L.D.S.
W. HEADRIDGE, L.D.S. [L.R.C.P.]	T. TANNER, L.D.S.
W. A. HOOTON, L.D.S. M.R.C.S.,	G. O. WHITTAKER, L.D.S.

Assistant Dental Surgeons.

H. T. DRESCHFELD, L.D.S.	H. W. NORMAN, L.D.S.
D. HEADRIDGE, L.D.S. [D.D.S.]	T. E. SHERRATT, L.D.S.
J. P. HEADRIDGE, L.D.S., B.Sc.	C. H. SMALE, L.D.S.

Anæsthetists.

A WILSON, F.R.C.S.	F. H. WESTMACOTT, F.R.C.S.
W. B. PRITCHARD, M.R.C.S., L.R.C.P.	

House Dental Surgeons—B. J. RODWAY, L.D.S. G. H. MEEK, L.D.S.
Demonstrator—W. H. JONES, L.D.S.

Tutor—C. H. PRESTON, M.D., F.R.C.S., L.D.S.

Curator of Museum—DAVID HEADRIDGE, L.D.S.

Consulting Prosthetic Dental Surgeon—T. TANNER, L.D.S.

Demonstrator of Dental Prosthetics—ROBT. HOWARD, L.D.S.

Instructor in Dental Mechanics—H. W. FILLAN.

Dean—WM. SIMMS, L.D.S.

The Summer Session will commence on Friday, May 3rd, 1901.

Owing to the great increase in the number of patients and students it has been found necessary to add to the accommodation at the Hospital, new Filling Room, a Demonstrator's Room, a Students' Common Room, and additions to the Prosthetic Room have been made. The Electric Light also has been installed throughout the Hospital.

Two Dental Surgeons are in attendance each time the Hospital is open, and are assisted in the practical teaching by Five Stipendiary Dental Officers.

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During their first four months at the Hospital, new students are taken by the Demonstrator through a very complete course of practical instruction in all branches of Operative Dentistry. This course includes the actual preparation and filling of cavities out of, and in the mouth, the treatment of the different pathological conditions of the dental pulp, the treatment and filling of root canals, and the different methods of crowning.

A Special Course of Demonstrations is given to more advanced Students by the Lecturer on Operative Dentistry, and other demonstrations are given periodically by the Dental Staff.

PRIZES.—Prizes are awarded annually in July. The Fletcher Prizes consist of a first prize, value £8, for second years' men, and a second prize, value £2, for first year's men. Operating Prize, value £3 3s. A prize, value £2 2s. is given by Messrs. Ash and Sons for the best essay on some subject in general surgery in connection with the teeth. Two prizes, value £1 1s. and £2 2s., are offered respectively to first and second years' men for proficiency in the extraction of teeth. A Prize, value £2 2s., is also given for the best series of Regulation cases treated during the year. Two Prizes value £3 3s. and £2 2s., open to Pupils in the Prosthetic Department.

FEES.—The fee for the two years' Dental Hospital Practice to all who enter under the new Regulations required by the College of Surgeons of England is twenty guineas, which must be paid in advance.

Prosthetic Department.—The Hospital provides the necessary teaching in Mechanical Dentistry, and a limited number of apprentices will be received. Fully equipped workrooms have been constructed, and apprentices will be taken through a complete and graded course of training in Theoretical and Practical Mechanical Dentistry under the charge of the Prosthetic Dental Surgeon.

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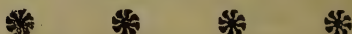
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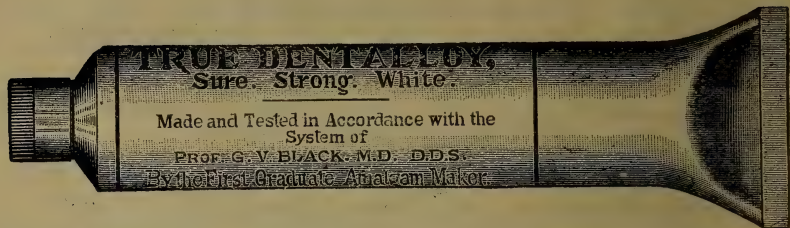
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If you want the best results possible, the printed directions which accompany each package should be followed. Those directions were formulated to afford a reliable guide to the most satisfactory use of the Alloy. It has been definitely established that the character of an amalgam filling varies with the proportion of mercury in the mass. A filling with 10 or 20 per cent. more mercury than is required will not be as durable as one in which just the right quantity is used. It is therefore important that the right proportions be known and be observed in mixing. The point is, that no matter how perfect the alloy, something depends on the dentist.

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“True Dentalloy” is made of pure metals. It is fine-cut—powdery—because this state is believed to favour ready amalgamation. Combined with the proper quantity of mercury it makes an amalgam which gives a strong breaking, crushing, and “flow” test; which is white in colour, and which is uniform. It does not contract; it expands slightly during the early stages of setting, and thereafter maintains its form and size. It sets in about fifteen minutes. It retains its properties indefinitely because it is properly annealed before being put up for sale.

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List of Prices for Teeth in Sterling.

Plain, Rubber, Plate and	}	Single each	s	d.
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Plate		"	"		46	0

Hand-made and	}	Single each	1	0
Smokers		Per 100	91	0
		"	in lots of 500	...	84	0

Logan Crowns, 1 Pin	}	Single each	2	7
		In lots of 50	2	5
		"	100...	...	2	4
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Diatorics	}	Single each	0	3
		Per 100	20	0
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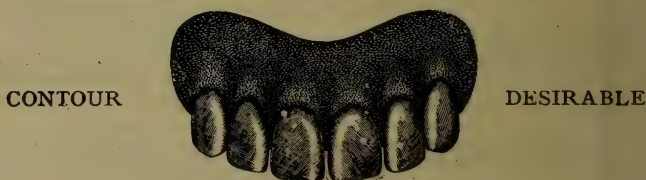
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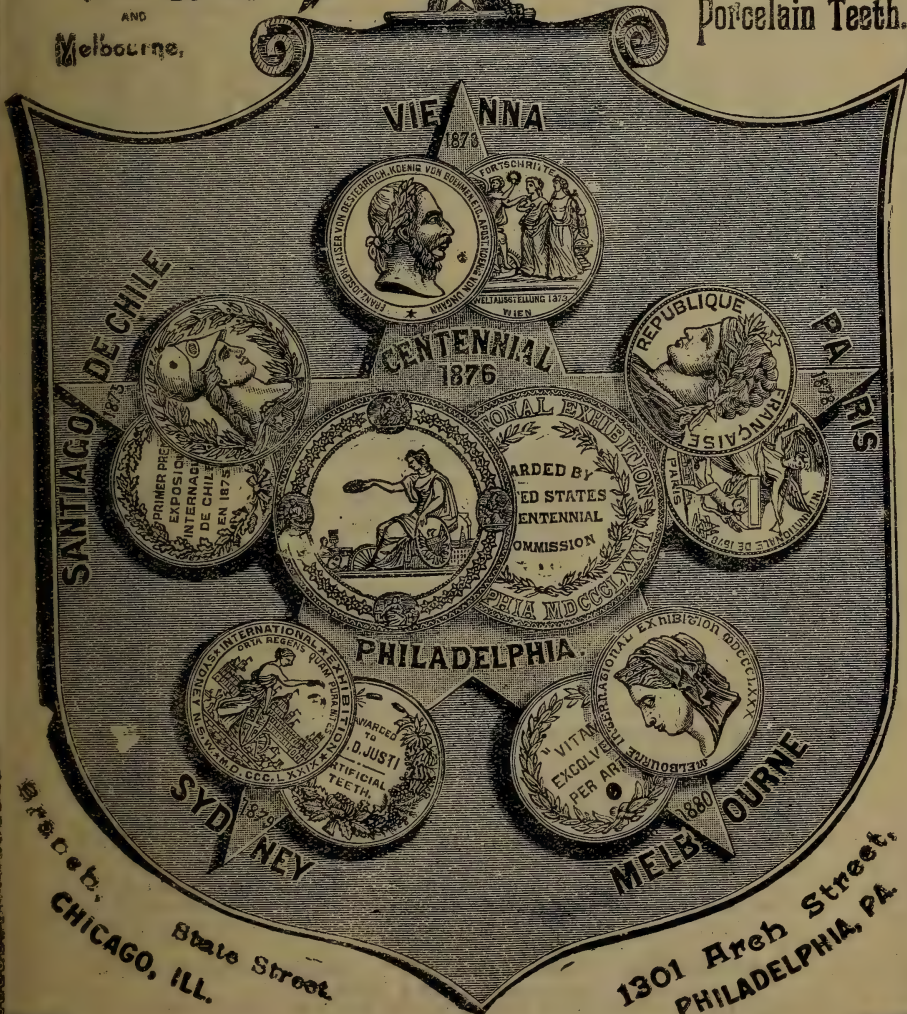
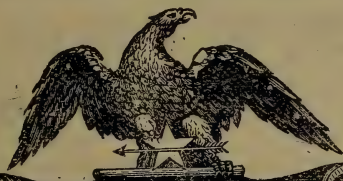
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Desensitor is supplied to Dentists, in wide-mouth one and two ounce glass bottles, bearing full directions for its use.

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Tough, Elastic, and Durable,

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Round, in boxes of 150 points, 2s. per box.

No. 1 light grey, No. 2 dark grey, No. 3 brown, No. 4 pink.

These points are hand-made and of the best and purest Gutta-percha. No. 1, 2 and 4 contain very little colouring and No. 3 is made of pure Gutta-percha.

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Kindes regards,

Dr. E. R. HOFF.

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Acceding to your request regarding the samples sent, send you the following.

The gutta percha points have the advantage of being unusually fine and hence capable of being introduced into the narrowest canals with a minimum of time and patience.

Respectfully,

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Price 2s. 6d. By post 2s. 9a.

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A monthly magazine devoted to dental art, science and literature, established 1878. Edited by Dr. R. Ottolengui. Published by the Consolidated Dental Manufacturing Co., New York.

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Second—It gives more illustrations than any other dental periodical, believing that the demands of to-day make it necessary to assist the text with engravings. These illustrations are of the highest order.

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R. S. Williams' Gold

Is known to every dentist in the world as the “King of Filling Materials,” on account of it excelling all others both in respect to results achieved and the ease with which it can be manipulated.

R. S. Williams never made a gold filling which would last a month or a year only. When after hard labour he produced something worthy to be given to the profession, it proved also to be a lasting tribute to his inventive genius.

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For sale by the principal Dental Depôts in Great Britain.

British Journal of Dental Science.

No. 797. LONDON, APRIL 1, 1901. Vol. XLIV.

CONCERNING NASMYTH'S MEMBRANE.

By A. HOPEWELL SMITH, M.R.C.S., L.R.C.P., L.D.S. Eng.

Origin. This tissue, which has recently been studied afresh microscopically, chiefly by Professor Paul, of Liverpool, is now known to have its origin as an epiblastic formation of the external epithelium of the enamel organ.

Distribution. Situated externally on the free surface of the unworn enamel of man, monkey and sheep, is found, under suitable conditions, Nasmyth's membrane. This is the "cuticle of the enamel" of the older writers. It has also been incorrectly termed "persistent dental capsule." It is a thin continuous tissue spread flat over the enamel, dipping into the naturally-formed pits and fissures on the surface, and limited in extent by the cervical portion of the tooth, to the edges of which it is attached. In a well-developed adult premolar its measurements are 29 m.m. in its widest part, 19 m.m. in its narrowest, and 26 m.m. round the cervical region of the tooth. All teeth possess the membrane in a more or less complete condition. Even senile teeth when treated with a decalcifying solution to remove the

enamel have traces of it, but it is best observed in those teeth which, while still unerupted, (premolars for instance,) have been removed for the treatment of irregularities, because in this case the cellular layer is undamaged, though it may be injured during the act of extraction. Portions of the cellular layer may remain attached to the inner aspect of the dental sac, which, as a rule, also comes away with the tooth.

According to Kolliker, it measures in thickness, from 1-25,000th to 1-12,500th of an inch.

Easily detached by the action of strong acids, it is only when Paul's method of preparing specimens is adopted that its real normal structure is ascertained.

Histology. Nasmyth's membrane consists of two parts, (1) an outer cellular portion, and (2) an inner structureless translucent lamina or pellicle. These are both intimately adherent, not only to each other, but also to the free ends of the underlying enamel prisms.

1. The cellular portion is interesting inasmuch as its structure is made up of a layer or layers of large polygonal flattened epithelial cells, with pronounced nuclei. It is quite possible and most probable that the cells are more than one layer in depth. Many sections, when correctly stained, exhibit such a dense pattern of cells that this belief in the multiplicity of layers is no doubt well founded. It is however doubtful if more than three layers ever exist. The double or treble layers are not observed all over the surface of the pellicle, but only in those situations where the membrane dips down deeply into the pits or fissures of the enamel, and here too the pellicle itself is apparently thicker than elsewhere. The protoplasm of the cells is faintly granular. Under high powers, the spongioplasm and hyaloplasm* may be clearly defined.

* The "spongioplasm" according to Schäfer (Quain's Elements of Anatomy, Vol. 1, Part 2, twelfth edition), is a reticulum or network of protoplasm in the cell substance; and "hyaloplasm" is the name applied to the substance which occupies or fills its meshes.

Paul attributes to the cells an average diameter of 1-2,000th of an inch, and a length of 1-1,000th inch. Cells having "cogged" outlines are seen constantly: and in places the polygonal cells are flattened, probably by mutual pressure, in one or more lateral directions, and may thus assume a cubical or even cylindrical shape.

The nuclei are particularly large compared to the size of each cell, are ovoid in shape or nearly round in outline, and possess faint nucleoli. These are usually single, and often contain in their interior, as well as near their exteriors, one or more vacuole-like, bright, shining globules.

2. The inner or sub-epithelial layer is a delicate continuous membrane, apparently without histological structure of any kind. It is translucent, elastic, and cornified, and resists the action of acids in a similar way to the Sheaths of Neumann or the linings of Haversian canals. On its under surface, i.e. the part nearest enamel a reticulated pattern can be fairly easily demonstrated. This corresponds to, and is probably produced by the free ends of the enamel prisms, which have left their hexagonal impressions on the membrane. It is to be noted that the hexagons of the pattern have sharp, clear margins made up of straight outlines, correspond in size to the diameter of the enamel prisms, and in no way approximate to the size of the epithelial cells, being "at least ten times too large for the enamel prisms." (Paul).

In sections of Nasmyth's membrane which have been obtained *in situ*, it has been possible to find in the deep enamel pits lacunæ similar to those of cementum or bone surrounded by a capsule, and apparently associated very closely with the translucent layer of the membrane. Tomes has repeatedly seen this condition. How these encapsuled cells get into the pits or fissures is not quite clear. There is an occasional appearance noticed in teased or spread-out sections of the membrane of the cells being arranged con-

centrically round certain tiny spaces, and it may be that these represent in some way the spots where encapsuled lacunæ may be deposited. A lacunæ may perhaps represent a persistent retained and imprisoned cell of the stratum intermedium of the enamel organ, where, owing to the formation of the cusps of the teeth, an involution of this layer of cells has taken place ; or it may represent an aberrant cementoblast which has likewise remained unatrophied or unabsorbed.

Fresh research on this matter is needed before a dogmatic opinion can be expressed. At all events it is now perfectly established that Nasmyth's membrane can be regarded with certainty as an epithelial remnant of the external epithelium of the enamel organ, and thus the theories of Waldeyer, Röse, and others, are now to be considered correct.

SPECULATIONS ON THE TEETH BY LORD BACON. 1620-1622.

Sylva Sylvarum, or a Naturall History in ten centuries, written by the Right Honourable Francis Lord Verulam, Viscount St. Alban.

NOTE.—*Sylva Sylvarum* was written as a sort of sample of the way in which facts must be accumulated and experiments conducted to form a basis for Bacon's system of inductive natural philosophy. For the following quaint extracts we are indebted to J. F. R. Stainer, Esq., Barrister at Law.

Century VIII. No. 747. To restore teeth in age were *Magnali Naturæ*. It may be thought of : . . .

No. 750. Teeth are thought to have a kind of marrow diffused, which causeth the sense and pain, but it is rather sinew; for marrow hath no sense, no more than blood.

No. 752. The teeth are, in Men, of three kinds, *Sharp*, as the fore-teeth; *Broad*, as the back-teeth, which we call molar teeth or grinders; and *Pointed* teeth or canine, which are between both.

No. 755. The teeth of men breed first when the child is about a year and a half old, and then they cast them, and new come about seven years old. But divers have backward teeth come forth at twenty, yea, some at thirty and forty. *Query*, of the manner of the coming of them forth. They tell a tale of the old Countess of Desmond, who lived till she was seven score years old, that she did denture twice or thrice, casting her old teeth, and others coming in their place.

No. 756. Teeth are much hurt by sweetmeats; and by painting with mercury, and by things over hot, and by things over cold, and by Rheums. And the pain of the teeth is ore of the sharpest of pains.

No. 757. Concerning teeth, these things are to be considered. 1. The preserving of them. 2. The keeping of them white. 3. The drawing of them with least pain. 4. The staying and easing of toothache. 5. The binding in of artificial teeth, where teeth have been stricken out. 6. And last of all, that great one of restoring teeth in age. The instances that give any likelihood of restoring teeth in age, are the late coming of teeth in some, and the renewing of the beaks of birds, which are commaterial with teeth. *Query*, therefore, more particularly how that cometh. And again, the renewing of horns. But yet that hath not been known to have been provoked by art: therefore, let trial be

made, whether horns may be procured to grow in beasts that are not horned, and how? And whether they may be procured to come larger than usual, as to make an ox or a deer have a greater head of horns? And whether the head of a deer, that by age is more spitted, may be brought again to be more branched? For these trials and the like will show whether by art such hard matter can be called and provoked.

. . . And whether children may not have some wash or something to make their teeth better or stronger? Coral is in use as an help to the teeth of children.

SOME DENTAL RUDIMENTS IN HUMAN CRANIA.*

By W. H. L. DUCKWORTH, M.A.

University Lecturer in Physical Anthropology, Cambridge.

It is desired to draw attention to the occurrence in human crania of small discrete dental masses which appear on the alveolar margin of the upper maxilla, and with great, though not with absolute, constancy, on that portion of it which lies between the last premolar and the first molar teeth. These occurrences have been the subject of investigations by D. H. Fraser, B.A. (Caius College, Cambridge), and myself,[†] and they appear to us to raise some questions of interest which may be stated in the following order :

(1) The nature of these rudiments ; which may conceivably be (a) remnants of teeth of the milk or temporary

* Read before the Odontological Society of Great Britain,

† Cf. Proc. Camb. Phil. Soc., February, 1900.

dentition which have not been completely displaced and ejected by their permanent successors; or (*b*) aborted or vestigial premolars which would correspond to the third premolars of the platyrrhine apes; or (*c*) elements bearing no homological relation to those of either of the two normal sets (temporary and permanent) of the primate dentition.

(2) The frequency with which these rudiments appear; herein considering the possible influences of (*a*) race; (*b*) age; (*c*) sex.

(3) The bearing on the preceding questions, of observations made on other primates and mammals than man, but especially on the anthropoid apes.

Turning to the consideration of the first important question, viz., the nature of these rudiments, we recognize that their commonest situation (between the second premolar and first molar teeth) does not by any means preclude the possibility of their being persistent remains of the "temporary teeth," and while we cannot consider the question as finally answered, the following considerations seem to us to discountenance the view which regards these as fragments of "temporary teeth"; viz., (*a*) the comparative constancy of their position on the alveolar margin; (*b*) the rarity of their occurrence in the mandible; (*c*) the differences which are exhibited by various races of man in presenting these appearances—this will be more fitly dealt with later; (*d*) the comparatively great frequency of their occurrence symmetrically on both sides of the palate (*e*) the fact that the recognisable persistent milk teeth are usually of considerably greater size than these rudiments the rudiments are admittedly in one case (2514, Australian) of fair size; (*f*) the variation in the frequency of occurrence which will be seen to characterise the different species of anthropoid apes.

On the other hand there is a slight indication of greater frequency in young adults than in senile individuals, but on

the whole there is sufficient evidence to justify the view that at least some of these rudiments are not vestigial temporary teeth.

In considering the other possibilities regarding their nature, we have had the advantage of a discussion with Dr. Marett Tims, to whom the specimens were submitted, and who suggests that these are examples of dental rudiments considered to belong to a third or post-permanent dentition, such as are very constantly demonstrable embedded in the alveolar arch of certain mammals (carnivora), though they do not as a rule make their way to the surface. These are developed, however, on the lingual side of the alveolar ridge, whereas the masses are observed by us to occupy positions on the lingual or the buccal alveolar margin, or even both simultaneously, so that while a certain number of these rudiments probably fall into the category proposed by Dr. Tims, on the whole we think that it is most reasonable to adopt the view that they are aborted third premolars which constitute a human type of dentition similar to that of the New World apes. Should further investigation prove this to be a correct view, it would constitute a link connecting man more closely with these platyrrhine primates.

With regard to the minute structure of the fragments, Mr. Hopewell Smith has most courteously reported on several specimens submitted to him, and while finding in one case (No. 3373, New Britain) nothing but an indistinct calcified mass, in other specimens (Nos. 3354 and 2154), both enamel and dentine were clearly recognisable.

In looking at the second question, the factors influencing the frequency of occurrence, it at once appears that while sex has no appreciable effect and age but little, that of race is most unmistakable. To begin with, we found *no* instances in three hundred crania of Egyptians, and only one in about fifty crania of Europeans examined; whereas in the negro

racés and Aborigines of Australia the frequency is, comparatively speaking, very great. Of all these, however, the natives of New Britain seem to present by far the greatest number, both absolutely and relatively, of cases of the abnormality. The aborigines of New Britain are followed by those of Australia, and these by African negroes. The American races also appear, but whereas the number of Peruvians examined was considerably over 100, only two presented signs of these rudiments. These facts claim attention for this subject, whatever be the exact nature ascribed to the abnormalities.

Finally, on examining a large series of crania of anthropoid apes, the answer to the third question indicated is, that here also occurs a curious variation in the mode of occurrence ; for none of the lower primates (about twelve were examined) afforded a case ; no occurrence was seen in six crania of hylobates, and four of chimpanzees at Cambridge ; but at Lübeck there is in the Natural History Museum, a chimpanzee skull with a large fragment between the first and second upper molar teeth of the upper jaw, and on the outer side of the alveolar margin. Among the orang-utans available was one very important specimen which alone (out of nine skulls) showed the occurrence, whereas no less than seven out of thirteen gorilla skulls presented examples of various modifications of the anomaly.

The orang-utan skull deserves a word of special mention. The rudiments occurred in the mandible, not only between the second premolar and first molar, but also between the first and second molars on the left side. Now in the latter case there could be no question of the retention of a temporary tooth or a fragment of the same, for the temporary series does not extend backwards beyond the position of the second premolar. This we regard as evidence of the independent

origin of the fragment, but we recognize that it is difficult to argue from the case of an orang-utan to that of man.

The extraordinary frequency of the occurrence of these anomalies in gorilla skulls certainly points in the same direction as the evidence from the orang mandible. We would therefore conclude by expressing the belief that though a classification of these rudiments may be needed, yet some of them really represent aborted teeth which, if fully developed, would confer on man a dentition formula identical with that of the platyrrhine apes.

In expressing this belief we admit that we are aware that there is a strong tendency in certain quarters* to insist on a greater approximation of the platyrrhine apes and man than has hitherto been regarded as justifiable, but we have tried to discuss in an impartial manner the significance of the observations we have made.

Since the preliminary notes were read before the Cambridge Philosophical Society, we have continued our observations. One of us has visited several foreign museums, notably those at Lübeck, Munich, and Würzburg, in search of evidence on the subject. The only additions that we can make are to the effect that (1) the occurrence of additional dental masses in crania from New Britain appears higher than in crania from any other region of Melanesia yet examined (we have examined the Melanesian crania at the Royal College of Surgeons); and that (2) in anthropoid apes there is a distinct tendency to the occurrence of the dental masses on the buccal side of existing teeth, and in a few cases, for instance, the chimpanzee skull at Lübeck, in other situations besides the common one, viz., between the second premolar and first molar.

It is thought however, finally, that the assumption may be maintained that some of the fragments do represent third premolars.

* Recent work by Dubois and Klaatsch is particularly to be consulted.

As regards the calcareous mass found in the New Britain skull, No. 3373, it is submitted that a very imperfect tooth formation may here be represented, nothing beyond calcification having occurred.

For a classification of the results obtained from the examination of the crania of human beings and of apes, our preliminary note in the Proceedings of the Cambridge Philosophical Society may be referred to.

THE USE OF THE TUNING-FORK AS A TEST FOR DISEASE OF THE MAXILLARY ANTRUM.

In the *Laryngoscope* for February, 1901, Dr. D. A. Kuyk, Richmond, Va., calls attention to the use of the tuning-fork in cases of antrum disease where the diagnosis is obscure. By testing with the fork over the antrum and first and second molars, "if the antra are free and clear the tuning-fork (C. and Co.) will be heard with equal distinctness and for a like duration over each side and in either location." "If one antrum contains fluid the fork will not be heard so distinctly, perhaps faintly, perhaps not at all; if the opposite antrum is free the patient replies quickly and positively in the affirmative." The author notes that the same method may be applied to cases in frontal sinus disease, and perhaps ethmoid disease, and certainly it is of no use in mastoid disease. He appeals to his *confreres*, especially those who have unlimited clinical material to corroborate his results.

British Journal of Dental Science.

LONDON, APRIL 1, 1901.

DENTAL CARIES IN SCHOOL CHILDREN.

Dr. Arthur De Voe, of Seattle, Washington, has been giving his opinion in *Pediatrics* on the necessity for abatement of dental caries in public school children. Dr. De Voe is evidently annoyed that some dentists make a respectable income, for he writes: "Caries of the teeth is so far prevalent among young and old, as to form the basis of one of the most lucrative of arts or crafts. (Why not profession?) Now, without any wanton purpose to injure so useful a calling as dentistry, I think it high time to urge a more general recognition of this evil in an enlightened, well-physicianed country, which maintains so many of these dental operators on the high feather of luxury. Surely it is within the scope of medical authority and duty to enquire into the causes as a matter of great public interest. Dentists may do this in their own way, but their scope of vision naturally does not cover actions and reactions of disturbed physiology,—of digestive, rachitic, scorbutic, syphilitic, or allied troubles out of which dental ills so largely arise."

We would inform Dr. De Voe that on this side of the water at least, there are many dentists whose "scope of vision" is quite as wide and acute as that of their medical brethren, and while we quite agree that "it is within the scope of medical authority and duty to inquire into the causes," we are quite certain that only those who have made a special study of the teeth can be at all fitted to grapple with so

abstruse a subject. In his next paragraph Dr. De Voe reveals how lamentably deficient he is in some of the facts of which he treats, for he says: "The medical profession has been urged by strong and sufficient motives to join with municipal authorities to fight for the suppression of the contagious diseases,—diphtheria, tuberculosis, etc. What of the germ *micrococcus fætidis*? This germ is the cause of disease by the very term of its classification, "pathogenic." *M. fætidis* preys upon the teeth of our children to an alarming extent. Our schools, where children congregate, making congested areas of population, with more or less restricted ventilation, are infested by dental caries."

If this means anything at all it means that the *micrococcus fætidis* causes dental caries in the same manner that tubercle and diphtheria bacilli cause those diseases, and that children herding together are infected by the former just as they are by the two latter. Nothing can be further from the truth.

He then quotes the *British Medical Journal* which describes the bad condition of School Children's teeth in England as a "national calamity." "This," he says "is a general statement giving no count, no statistics of careful examinations. Nor have we any basis for an accurate statement of conditions prevailing in this country," (*i.e.* in America). No reliable information can be obtained, except under an order from the public health authorities." He then exhorts some large American city to give an order for the competent examinations of the mouths of its school children of the primary grades and make a record of the results. "It will cost money, but the work if intelligently prosecuted, and the facts tabulated, may become the foundation for constructive or saving energies to act upon." This paragraph also shows that Dr. De Voe is not up in his subject, for the very facts he is longing for have long ago been collected in this country by the School Children's Committee of the British Dental Association, whose work is now carried on by the School Dentists' Society. This Committee at a very small cost, but by a great deal of painstaking work, tabulated the results of inspection of many

thousands of children's mouths, which report is of extreme use and value, and would be at Dr. De Voe's service if he were aware of its existence.

While we are compelled to severely criticise some of Dr. De Voe's statements, at the same time we quite agree with him in some of his remarks; as for instance when he says that parents who would immediately seek relief for their children if they were afflicted with ringworm or some other ailments, never seem to regard attention to dental disease as being of the slightest consequence. His advice to physicians and public health officials to pay more attention to the prevailing state of things with a view to the appointment of dentists for State schools is also sound. When we consider how many recruits for Navy and Army are rejected for dental deficiencies, we cannot but deplore how much useful material required by the State is rendered unfit by neglect which might be prevented at a comparatively small cost in proportion to the advantage gained. An agitation is on foot to provide dentists for our soldiers and sailors, but, in our opinion, a far more useful and economical plan would be the appointment of dentists in our Board Schools in the same manner in which they are appointed to many of the Schools under the control of the Local Government Board.

DENTAL AID FOR IMPERIAL FORCES.—The annual meeting of the Odonto-Chirurgical Society of Scotland was held recently in Edinburgh. Mr. C. Rees Price, Glasgow, President, occupied the chair. Mr. William Guy, F.R.C.S.E., L.D.S., Edinburgh, the Treasurer, reported that the funds at their credit stood at £183 1s. 4d., which was £19 greater than a year ago. The report was adopted. Mr. H. B. Ezard, L.D.S., Edinburgh, was appointed President for the ensuing session. In the absence of Mr. Ezard, Mr. P. S. Walker, Dundee, Vice-President, was called to the chair. Several communications were made. Mr. Guy read a paper

on "Dental Aid for the Imperial Forces." He said that the events of the past 18 months showed that an army in the field had more to fear from the germ than from the foemen's guns. The soldier was pretty well looked after, but his whole anatomy should be a grateful nation's care. It was well known that many volunteers for service were refused because of the condition of their teeth, and it was very reasonable to suppose that a good many recruits would be saved from rejection if they had their teeth put in order at the beginning of their service. He moved that the following resolution be sent to the Secretary for War and the First Lord of the Admiralty:—"That in the opinion of the Odontochirurgical Society of Scotland, the provision of dental aid for the Imperial forces is a question deserving the immediate attention of the Government." The resolution was adopted. Papers were also given by Mr. William Dall, L.D.S., and Mr. J. Douglas Logan, L.D.S. Votes of thanks were accorded the readers and the Chairman.

SUICIDE OF A YORK DENTIST.—Mr. John Henry Inman, dentist, of Portland House, Gillygate, York, died recently from the effects of poison. He had been unwell for about three weeks, but not seriously. While in bed one morning, about eleven o'clock he sent his niece to tell his wife that he wanted to see her. Mrs. Inman and the niece returned together, and as they entered the bedroom he said "I shan't be here long to bother you, I have taken some of that poison," pointing to a bottle on the dressing table. Mrs. Inman ran downstairs, and sent for Dr. Weeks, but he was too late to avert death. Mr. Inman was 56 years of age.

DENTISTRY AT HOME.—As everyone knows, one of King John's favourite pastimes was extracting something from his

wealthy subjects—if he failed to get money he took teeth. This savours of the Middle Ages, yet last week, at Leeds, a woman was charged with assaulting a domestic servant in her employ. The girl, in her evidence, stated that shortly after Whitsuntide her mistress told her that whenever she did not suit her she would have a tooth pulled out. In all, the girl said, three teeth were broken off with a hammer by the defendant, seven pulled out with pincers by the nurse, and two knocked out with a hammer. The case was adjourned, so we have yet to learn how it was that a girl of eighteen could be induced to put up with such amateur dentistry.

ARE FALSE TEETH POISONOUS?—The suggestion that a chronic poisoning may be induced by vulcanite plates is by no means new ; and were dental plates not made with special care there might really be some risk of arsenic poisoning. For vulcanization, all that is needed is rubber and sulphur, the product after vulcanization being black. Red rubber is made by the addition of vermilion, which masks the blackness, and a leading firm of manufacturers of dental rubber, whose annual output is a good many tons, vouch for the fact that neither arsenic nor antimony in any form enters into the composition of any of their materials. The great requisite in dental vulcanization is, of course, pure sulphur. Vermilion is very insoluble and probably almost inert ; moreover, it is very tightly locked up in the vulcanised rubber. An investigation to which the *British Medical Journal* refers, was undertaken by the Odontological Society, and, out of the numerous replies sent in, not a single case bore investigation ; examples of irritation exactly similar in kind and degree were met with under gold plates and under black rubber, and in almost every case were attributable to insufficient cleanliness.

JEWELLED TEETH.—According to the *Daily Mail*, Jewelled teeth are scarcely popular with the unostentatious, but a

French dental specialist has arisen to defend the practice on the score of utility and healthfulness.

It was a common practice ages ago to have the teeth studded with precious stones. When the mysterious cities of Honduras were being explored numbers of mummies were discovered in the tombs with ornamented teeth.

According to the Parisian dental authority there was and is sound reason for pursuing the practice. Diamonds, of course, are only inserted in artificial teeth and crown settings.

"At the point of contact in the articulation of an artificial tooth or crown setting with the surface of the opposing tooth, or teeth, one or more diamonds are inserted in such a manner that the 'bite' is on carbon or diamond instead of on porcelain or gold. Experience proves two advantages. The first, which is the least, is that a porcelain tooth can never break, nor can a crown setting be worn through. The second, which is of great importance, is that through the application of the diamond one can masticate food with astonishing thoroughness, and thus avoid indigestion. For full sets, and for gaps in the back of the mouth, this arrangement is specially valuable. Two diamonds are set in each bicuspid, and as many as three or four in a single molar, the sulci in the masticating surfaces of the crowns being utilised for the settings."

From twenty to a hundred guineas per tooth, varying according to the size of the stones, is the price of a jewelled mouth, which, however, would not gleam and glitter in the public gaze, for the diamonds are imbedded in the grinding surfaces of the teeth, and would not be seen.

Lodger: "I must look for another room. The noise in the neighbourhood last night was simply unbearable. Three times I was awakened by the shrieks of some person in agony." Landlady: "Please do not be hasty. It is but one night in the week when the painless dentist keeps open."—*Judge.*

Abstracts of British & Foreign Journals.

CHINESE PHYSICIAN.

By the Hon. WILLIAM E. S. FALES,
Formerly U. S. and French Consul in Amoy, China.

My first acquaintance in the medical profession was Ah Chin. He was about fifty years old, tall, slender and dignified. He belonged to the mandarin class, and his medical knowledge was hereditary, if I may use a bull, his father, grandfather, and other ancestors having been members of the profession. With the curious instinct begotten by ancestor worship, he credited his success in life not to his father, whose assistant he had been, but to his grandfather, who had died before Ah Chin had reached manhood's estate. He had a large practice and enjoyed a professional income of probably twenty-five hundred a year, which is the equivalent of twenty-five thousand dollars in our Western civilization. He was popular and had a deserved reputation for generosity and kindness to the poor.

There were some topics upon which he preserved a smiling silence. These were professional secrets which had come down in his family and which he would transmit inviolate as valuable property to his eldest son, who had already entered upon a successful medical career. The limitations of his mental horizon were very curious to us. In some respects he had wonderful knowledge, while in others he was so ignorant as to arouse ridicule or pity. He was a master of acupuncture and could thrust a needle into almost every part of the human frame without doing any damage. He knew what the Chinese call the safe points, the dangerous points, and the dead points. He had learned these by practising for years upon a manikin which was covered with opaque wax, concealing the apertures which every good Chinese surgeon must know. And yet he had very little idea of why one point was safe and another perilous.

He knew there were veins and arteries in the body, but he

knew nothing of their location and relation. He knew no more about the osseous system than an average American boy, but he did know considerable about the joints and how to treat dislocations. Of hygiene and sanitation he knew nothing, and did not care about them. Outside of his own house, abutting upon the wall and flowing over into his yard, was a pile of filth and garbage whose stench could be perceived a hundred yards away. He was interested in Western medicine, despising its theory and practice of medication, and puzzling over rather than admiring its surgery. He approved of the germ theory, but denied that the microbes were microscopic creatures, holding very vehemently that they were creatures intermediate between worms and snakes, and that they were the causes of every kind of fever. He believed that these snakes or worms laid many eggs which passed from the patient's body through the bowels, the pores, and even the lungs, settled in other bodies, and there hatched and attacked the new surroundings. He was quite successful in respect to several complaints, notably rheumatism, neuralgia, gout, eczema, ulcers, carbuncles, and diarrheal complaints.

His methods for rheumatism, neuralgia and gout consisted in the liberal use of hot teas and broths and a relinquishment of all ordinary food. In most of the fluids there was a simple tonic, ginseng; in others there were aperients, apparently impure Epsom salts; one broth contained peppermint leaves, chopped almonds, bay-leaves, honey, blood and wine. So far as I could make out, he drenched the entire gastric system with immense quantities of hot water, washing out the entire body in that way, and relied upon the elements added to the water for medicinal action as well as for nourishment. In treating eczema he distinguished between an inflamed skin from which blood came at points and one from which merely lymph came. To the former he applied a paste made of pitch, peppermint, and some oils, and to the latter a paste made of raw eggs, honey, calcined kaolin, peppermint oil, laudanum and other substances. After the preparations were applied, the surface was covered with thin brown tissue-paper, this in turn with thick brown paper, and this held in place by narrow strips of white cotton cloth. The heat of the inflammation dried the clay paste, which became quite hard in twenty-four or thirty-six hours. He broke it off by striking it with a little hammer, then applied a new coating to the

raw surface. An ordinary eczema he cured in a week, and a severe one in two.

For stomacheache, gastric chills, flatulency, indigestion, and most forms of dyspepsia he had a treatment which was truly heroic. The patient lay at full length, and the doctor with his muscular hands pinched the skin of the abdomen from the end of the sternum to the pubic bone, and transversely almost to the backbone. The pinching was done with the thumb and forefinger or between the knuckles of the forefinger and middle finger. It was so powerful that sometimes it would draw or force blood through the pores, and so rapid that it might be compared to playing a piano. In ten minutes, using both hands, he would inflict from three to four hundred pinches. It was more than a rubefacient and counter-irritant. It drew the blood to the surface, so much so that on the second day the body was covered with black and blue crosses and every nerve was excited to a condition of intense activity. I must say that the method, though cruel, had excellent results. There was immediate relief and a very speedy cure. He scarified, as do all Chinese physicians, but did it in moderation. He used aperients in large quantities and preached the unhealthfulness of constipation.

For catarrhal troubles he used warm solutions of astringents rendered aseptic by peppermint and similar oils, and where there was pain, as in nasal catarrh, he often applied an oil into which he had put tincture of opium. For some forms of dyspepsia he used burned paper. The paper was a thick yellow tissue, which when burned left a fluffy black ash that was probably one-half carbon and the rest silica and mineral salts. Occasionally, perhaps always, he wrote talismanic characters with coloured pencils on the paper. At first I thought the talisman was merely a melodramatic flourish, but after a while I noticed that he employed different pencils, and that each pencil was made of a substance which, when burned, would exercise a chemical or medicinal influence. The vermilion pencil consisted of red mercury; the brown pencil was red oxide of iron; the white pencil contained carbonates of calcium and magnesium; another pencil contained some salt of sodium, an impure carbonate if I remember aright. The pencils had blunt points, and in writing a talisman ten or twelve grains of material would be transferred to the paper. When it was burned and diffused in a cup of tea, the ingredient would pass into the stomach along with the carbon of the paper.

For sores and ulcers he had salves of various sorts, the active ingredients being peppermint oil, pitch oil, camphor oil, and opium. They were practically a simple antiseptic and disinfectant dressing, always giving relief and generally assisting nature in effecting a prompt recovery. Take him for all in all, Ah Chin seemed to be very much like the poor Leech in "Romeo and Juliet." He had about the same range of simples, the same blind trust in his science, and the same ignorance of the higher science which modern therapeutics has brought into being.—*N. Y. Medical Journal*.

A FEW CASES OF ETHYL CHLORIDE NARCOSIS.

By W. J. McCARDIE, B.A. M.B., B.C. Cantab.,
Anæsthetist to the General and Dental Hospitals,
Birmingham.

Ethyl chloride, according to Kappeler, was first tried as an anæsthetic for surgical operations by Heyfelder. Recently Lotheissen of Innsbruck introduced it for general use in minor, or comparatively minor, surgery with great success. Ludwig and Wiesner and others quickly followed suit, and now some thousands of cases have been recorded. Occasionally it has been administered for 30, and once for 55 minutes for operations like colotomy and amputation, and in many of the shorter gynæcological interventions.

Ethyl chloride is said to have many advantages and few disadvantages. Anæsthesia is quickly (in about two minutes) induced and as rapidly passes off, leaving no, or slight, after-effects, has no irritating action, and can be administered in heart, lung, or kidney diseases, where ether and chloroform are contra-indicated or dangerous. Its main disadvantage is that, except perhaps in children, muscular relaxation is generally not complete and rigidity may be marked in muscular, and especially in alcoholic, subjects.

The best mask to administer from is that of Breuer, to be

obtained in Vienna, a close-fitting one with inspiratory and expiratory valves and a chamber above the former to hold the gauze on which the drug is to be sprayed. Large graduated flasks containing 50 cubic centimetres and a freer spraying capacity than usual should be used, so that the usual dose of from five to six cubic centimetres can be quickly poured out. The whole apparatus is very portable and convenient. Before I tried ethyl chloride on others I asked Mr. Charles St. Johnston, M.R.C.S., to administer it to me experimentally in a dental chair, and I can say that the subjective effects were like those of nitrous oxide in every respect and not at all unpleasant. Lotheissen has collected 2500 cases with one death, that of an extremely bad subject. Complications during the induction or continuance of anæsthesia appear to be rare, chiefly, so far as I can read, of an asphyxial kind and dependent on some mechanical factor.

Ethyl chloride would seem to be increasingly used in Germany and France, like ethyl bromide, in operations for which nitrous oxide alone, or mixed with oxygen, would be, if possible, administered in England.

The following are short notes of my first ten cases, the first two on Jan. 15th of this year.

1. A woman, aged 40 years; extraction of three teeth. Anæsthesia was induced in two and a half minutes and lasted about one minute, passing off quietly. The colour was heightened throughout. The inhaler was removed before the conjunctival reflex was abolished; there was very slight phonation towards the end, but there were perfect anæsthesia and recovery.

2. A woman, aged 21 years; extraction of three teeth. The course was much the same as in the last patient, the pulse being good and regular during the operation; there was no excitement or muscular spasm. The patient seemed to be in an analgetic condition.

3. A woman, aged 24 years. It took three minutes to get her apparently under—i.e., just stopping short of abolition of conjunctival reflex—but recovery was so rapid (a quarter of a minute) that no extraction could be performed. N_2O was therefore administered and two teeth were removed.

4. A strongly-built woman, aged 20 years: tooth extraction. After three minutes inhalation with little apparent effect, I changed to N_2O to complete the operation.

In the above cases I was proceeding very carefully because the exhibition of the drug was new to me and in Cases 3 and

4 too little was administered. Again, I was not using a graduated flask and so did not know how much ethyl chloride was sprayed on.

5. A man, aged 26 years; a difficult extraction. He was the ordinary type of patient. There was good anæsthesia from 20 to 35 seconds. There was no excitement; the colour and respiration were good. Administration was stopped when the conjunctival reflex became much dulled.

6. A woman, aged 23 years; extraction of two teeth. She was under (the reflex was not gone) in about two minutes. 10 seconds of quiet anæsthesia were obtained; about five cubic centimetres were used. The patient felt a little giddy for a short time afterwards.

7. A woman, aged 18 years; extraction of six teeth. The patient was very nervous, thin, and had a high arched palate. She felt sick and retched during the taking of an impression of the mouth before operation. There was quiet induction in two minutes: the reflex was just lost, the eyes were turned in, and the pupils were well contracted: the colour was good; the respirations were slow and regular. Perfect anæsthesia for more than one minute was obtained. The recovery was very gradual and quiet; two or three more teeth could have been extracted. She then retched much and vomited a little for a few minutes. She afterwards said that she felt well and much better than after N_2O on two previous occasions.

The usual dental sitting-up posture was kept in all these cases.

8. A girl, aged eight years; tonsils and adenoids. The administration was slow. Anæsthesia lasted for 25 seconds. Reapplied for tonsils; anæsthesia lasted for 20 seconds. Recovery was as perfect and rapid as from N_2O . There was no change of colour throughout.

9. A boy, aged 12 years; tonsils and adenoids. The course was the same as in the last case, only the anæsthesia was much shorter.

10. A spare woman, aged 32 years; scraping, etc., granulations of both ears. From five to six cubic cent. metres were sprayed on the inhaler. There was quiet induction in three minutes; the conjunctival reflex was just lost. There was perfect anæsthesia with slight muscular rigidity throughout which did not inconvenience the operator. The colour, pulse, and respiration were very good. Reflex was present most of the time corresponding to moderately contracted pupil. The reflex was twice abolished when the pupil

became well contracted and breathing became a little slower. Complete recovery occurred in about one and a half minutes. Operative anæsthesia lasted for five minutes. The patient vomited a little bile-stained fluid shortly after being put to bed. She then felt well, but five hours later she complained of feeling faint for a short time. She was quite well the next day. This was a most successful case in every way.

I used Breur's mask for all these patients and found it very convenient to manipulate. At no time had I anxiety, nor did I see any change for the worse either in respiration or circulation. I have several times used ethyl chloride instead of nitrous oxide as a preliminary in etherisation and with the same successful effect. The few cases which I have briefly and imperfectly recorded have been so successful that I shall lose no suitable opportunity of testing the drug in carefully selected patients for longer and more difficult operations.—*Lancet*.

A CASE ILLUSTRATING THE USE OF THE X-RAYS IN SURGERY.

By G. P. NEWBOLT, F.R.C.S. Eng., and C. THURSTON
HOLLAND, M.R.C.S. Eng., L.R.C.P. Lond.

On July 27th, Mr. Holland was sent for to see a boy, aged 16 years, who had when cleaning a window fallen backwards into an area and been badly hurt. When seen some hours after the accident, the cut, etc., having already been attended to, he was complaining of some difficulty in swallowing. As he was still in a very dazed condition it was difficult to get any reliable statement from him, but it was noticed by his friends that a front upper false tooth on a small vulcanite plate with two hooks was missing from the mouth. This could not be found anywhere, so it was decided to examine the boy with the X-rays. On looking at him with the screen a foreign body resembling a tooth-plate could be easily seen fixed behind the larynx and it moved up and down during

efforts at swallowing. The skiagram was taken with the same apparatus as in the preceding case, and with an exposure of 60 seconds. The boy was then transferred to the Southern Hospital and there under an anæsthetic Mr. Newbolt could just reach the top of the foreign body through the mouth with his finger. Without any difficulty he then managed to catch hold of it with a pair of strong forceps and to remove it. The boy made an uninterrupted recovery.—*Lancet*.

SOME PRACTICAL POINTS IN OPERATIVE DENTISTRY.

By Dr. THOMAS P. WILLIAMS, Houston, Texas.

I wish to call your attention briefly to a few points suggested to my mind which are important to the operative dentist, and just in the manner as they are disposed of, lead to success or failure. The first point I will mention is space—all important—as no man can put gold or amalgam where he cannot put the point of his plugger. There are various ways of obtaining necessary space. I heartily condemn the old, barbarous and unscientific method of separating with rubber. The only reason rubber was ever used, was the “old timers” had no other way. But in this time and day of first-class and efficient separators, there is no reason on earth for a dentist wasting his time and torturing his patient by using rubber. Some may say there is danger in the separator, but after fifteen years constant use, I am prepared to say there is no danger, provided common sense dictates the application of them. Don’t expect to separate all the teeth with one separator. Get the full set of Perry’s, and the “Little Giant.” No operative dentist can afford to be without them. Use the separator made for the teeth in hand. See that the points do not impinge upon the gums. Use gentle pressure at first, holding clamp steady with left hand until tight, allowing time for parts to give. In the interim you can be chiselling and paring walls, then a little more pressure, and in this way an abundance of space can be obtained in ten to fifteen

minutes without any loss of time, and many times without even a grunt from your patient. The separator holds the teeth steady and consequently no complaint from jar during process of filling. After insertion of filling more space can be secured, which is always necessary where it is desirable to retain contour. We can obtain the much desired space sometimes in the manner in which we cut and shape our cavities, and still not be at the expense of needed tooth structure. But let me say that I condemn the way some operators cut away the strong labial walls of incisors, and leaving the brittle lingual walls, looking for an easy job, but always at the expense of the longevity of the fillings and the general appearance of the patient's mouth. In separating, excavating and shaping our cavities, we should ever have in mind the welfare of the tooth. Many times a small amount of cutting in certain directions would materially weaken a tooth. Another point is to have walls and undercuts so they can be as nearly as possible reached with plugger with direct axis of force. Another important point which is daily impressed upon me, and no doubt upon many of you, is the great number of failures of amalgam fillings in approximal cavities of bicuspid and molars, chiefly due, I think, to too limited cutting. We cannot depend upon the lateral walls of these teeth for the retention of fillings, unusually they are thin and weak and will not stand the stress of mastication. I therefore advocate extending these cavities, bucco-lingually and upon occluding surfaces, whether decayed or not, making good large flat cavity and step. In leaving this point I enter a plea for more extended cutting of tooth substance than is generally practised, for the twofold purpose of removing weak walls and semi-decayed dentine and to facilitate the thorough packing and adaptation of material to cavity walls which is so necessary to prevent recurrence of decay, thereby producing successful operations. Have chisels and excavators sharp. But above all things use sharp burs. Don't try to economize on burs. After an experience of nearly twenty years I am confident, and am prepared to say, as I have used nearly all the obtundents, that taking all things into consideration, sharp burs, in a true hand-piece, turned by an electric motor, or good fast engine, is the best all round obtundent of sensitive dentine extant. I wish also to call attention to the slipshod operations many dentists are in the habit of doing with amalgam, abusing their best friends. Don't half prepare cavity; slap the stuff in, wipe off with cotton, turn them

loose, making no pretence at polishing and finishing. While I am an advocate of gold, in all cases where a lasting operation can be made, whether in molars or incisors, I tell my patients that the salvation of many teeth does not depend exactly upon what they are filled with, but upon how they are filled and finished. Therefore, I use amalgam in many cases, and always try to be as careful of preparation of cavity as with gold. A well finished amalgam filling in a properly shaped cavity is not to be sneezed at. How many of us pay any attention to contouring and knuckling amalgam fillings in approximal cavities of bicuspid and molars, so necessary to the comfort and welfare of patients? Let us be more careful and painstaking in this class of operations, taking time to separate contour polish and finish without destroying contour. These things take time, but are well worth it. Since the advent of quick setting amalgam it can be done at one sitting. For Heaven's sake try and educate your patients up to the point, that you are charging for the work and your time, and not for what you are putting in the tooth doing away with prevalent ideas that an amalgam filling is cheap. So let us pledge our best endeavours to pull amalgam out of the mud and mire, and place it upon the high ground which it deserves. One other point I wish to make, that is, the crowning of many teeth which could and should be filled. Only a few days ago a gentleman came into my office, said he wanted me to crown a tooth for him. I examined his mouth, found five or six crowns, showed me a good strong molar with good sized anterior approximal cavity. Said he wanted it crowned. I remarked that it needed filling only. "Oh, no. It must be crowned, then it will be good for all time, and I am surprised that you are trying to talk me out of it." I inserted a gold filling, which no doubt will preserve that tooth for a number of years. No one knows better than a dentist that a tooth well filled is infinitely superior to one crowned, more comfortable, more sightly and more hygienic. Therefore, crowns should be used only when teeth are beyond the pale of salvation by filling. Let us at all times advise candidly and honestly what we think best, leaving our interests in the back-ground for the time being, doing good thorough work, for which we can charge a justly remunerative fee.—*Texas Dental Journal.*

ARTIFICIAL DENTURES; FULL SETS; SHOULD THEY FIT?

By E. J. PERRY, D.D.S., Chicago.

The above may seem like a queer inquiry in view of the almost universal opinion that they should fit. In fact, we frequently hear men boast of occasional sets, saying they fit like a glove, could hardly pull them out they fit so tight, suction was perfect, and so forth. Many go to extremes to secure a perfect fit; will not use varnish on the impression lest the interposition of this thin film may change the fit. Some will not even use the lightest foil for the same reason. Theoretically they do not fit, any of them; and practically, if the fit was theoretically perfect they would not work at all. Theoretically a fit is impossible, and practically it is not desired. Fit is not the word at all. Adaptation should be substituted. There can be no such thing as a tight fit or a loose fit; it is a fit or it is not a fit: a tight fit or a loose fit is no fit at all. Of course it should approximate a fit, but in my judgment the whole secret is in adapting the plate to the tissues, so as to secure uniform pressure when capillary attraction or adhesion results.

How can this be done? Manifestly by studying the physical conditions of the alveolar ridges and arches in each case. An examination of the bony ridge and arch of the toothless skull will show an irregular surface, which in life is covered by soft tissues, periosteum, mucous membrane, etc., and highly vascular. These constitute a cushion which varies widely in thickness and density. At the juncture of the two maxillary bones a hard, fibrous, and almost bony ridge is characteristic, while at either side, running back to or beyond the tuberosity, a soft or yielding zone is usually found. Upon the summit of the tuberosity the cushion frequently varies from that on the ridge in front in thickness and sponginess. These very characteristics have to be dealt with in adapting a plate, and a special map or diagram should be made in each case and filed away for reference in the absence of the patient. One can educate his fingers in a short time so that the relative thickness and density of the cushion can be noted with enough accuracy for practical results.

It is the adjustment of the plate with special reference to these conditions that we desire, so that when pressure is made upon the teeth, as in mastication, the tendency is to set the plate more firmly in position, rather than unseat it, which is always the result if the plate rides upon the hard places and ridges, which it will surely do if you have the so-called fit. How often has your patient said, "Yes, the plate seems to fit, but when I bite it instantly falls down." Then if you will apply pressure to the molar surface on each side you will be able to rock the plate upon the median line, and will notice an escape of air at either side, where, as above noted, the cushion is thick and springy. You say the plate leaks. If the arch and ridge covered by the plate were absolutely uniform in density and thickness, assuming that you have the so-called fit, the pressure upon the molar or bicuspid surface would then tend to make the plate more firm in position. But as such is not the case, the plate first rests hard upon the hard places, the soft places yield, the plate falls from position. The fit, then, has nothing to do with it, or, stated differently, it falls because it does fit, or still again, because it doesn't fit differently. The whole difficulty, aside from any idiosyncrasy of the patient, comes from a lack of study along the line of special adjustment of the plate, as before stated.

The old idea of an "air-chamber" was in the last analysis only a relief, and often the larger the better. When too great, the depth simply induced hypertrophy or fungus growth. No vacuum ever resulted, and if it could have resulted it would have been of short and painful duration. Great care used to be taken with the margins of these air-chambers, so as to prevent leakage of air in or out. The Cleveland air-chamber in middle plates is an example in point. The air-chamber when shallow and extended the length of the hard ridge was a very fair relief, and a partial adjustment of the plate. When it did this it did all it ever could do. Then came a flexible soft rubber disk, fastened to the plate by a brutal rivet in its centre, operating on the principle of a duck's foot—the soft edges clinging, while the rivet pulling from the centre produced a partial vacuum. Then the flexible edges were another sucking device. All failed signally. Conditions, the vascularity of the tissues carrying the nutrient vessels of the bone, the distinctively peculiar environments of the mucous surfaces of the mouth under normal conditions, positively contraindicate any suction device for the retention of a dental plate, especially when the

plate is made of a non-conductor of thermal changes, and this is true both theoretically and practically.

I take the impression in plaster, using warm soft water with a pinch of salt ; selecting a tray approximately the size of the ridge, so that a minimum of plaster may be used. The ridge should not cut through the plaster to the tray, the plaster should not be too thick, and the mix should be smooth and free from lumps, so that in carrying to place it will not push nor displace the tissues. When in place the patient should swallow, and with the free hand you must press gently the lips and cheeks, so that you get a true copy of the frenum and muscles attached to the ridge. A perfect model of the mouth is desirable. Varnish first with thin, clean shellac ; when dry, then use sandarac. Mix the plaster for the model with great care, beat it well, not too thin, but quite thick. Place a portion on the top of the impression and gently coax or jolt it to position, thus avoiding bubbles and securing a model of even density, and if the impression has been varnished properly a smooth glassy surface results. Now mark the plate line at the heel, and after reference to the chart previously made, deepen the model on either side of the median line. This is the only place where I change the model by trimming, and the only treatment I give the model until after the case has been flaked and separated. After the rubber has been packed carefully, place over face of model a bit of thin cheese-cloth, preferably the layers of cloth which come between the sheets of pink rubber ; this has a paste on it which when placed against the rubber draws away easily. Close the flask with a press in boiling water slowly, so as to give the rubber time to run, and close clear down. Now separate ; take out cloth, and if any of the surplus has been forced into the vent, and you feel sure by other indications that you have sufficient rubber, take chart, and where relief is desired use No. 20, 40 or 60 tin foil on the median line on the juncture of the two halves of the maxillary bones. I use 40 or 60, or on the tuberosity perhaps 20. Cut pieces and press to place, then burnish them closely to the model. Next paint these surfaces with library paste or mucilage, and press these pieces of tin foil to place. Now paint the whole model with the paste, and carefully burnish No. 10 tin foil on the whole, close flask, and do not open again until after vulcanizing. This produces a beautiful surface, and I believe a stronger rubber. Of the adaptation I know. I use the same principle in swaging gold or platinum plates, simply

by cutting out pieces of 60 tin foil where I wish to relieve the hard areas. Of course if the model is not deepened the relief by adding tin foil makes a desirable difference, as this alone will drop the plate into the softer areas so much the harder, but I find it insufficient, though I deepen the model where the mouth is soft. I use no air-chamber, so-called whatever ; my whole study is simply to equalize the pressure of the denture, with special reference to the density and thickness of the membranous cushion which covers an irregular surface of bone called the alveolar ridges and arch.—*Dental Digest*.

HEAVY LOWER AND LIGHT UPPER DENTURES.

Noticing in the February number two queries, I feel impelled to answer. First, "What are the best methods known of weighting a full lower vulcanite denture?"

When I once thought it necessary to increase the weight of a lower set of vulcanite, I simply packed inside the rubber small strips of lead or tin. I have long since ceased to realize any especial benefit from extra weight. For many years I advocated the use of cast-metal plates. A few years since I was obliged to resort to a full denture. For the second plate I made, as the jaw is very flat and narrow, I used a cast-metal plate. To my surprise I found it would not answer at all. There being no ridge to prevent it sliding forward or sideways: if I leaned forward to speak to a student, the plate slid forward ; upon lying down in bed it would slide sideways.

Second, "How to lighten full upper cases with side-blocks?"

In the first place, do not use the blocks ; plain teeth can be articulated far better. But why wish to lighten them? Weight cuts no figure in a properly adjusted upper denture. I do not consider it a factor in any case whatever. As evidence, I have been putting in continuous gum dentures for fifty years, and find the weight no objection, and have constantly replaced rubber plates with them, and no complaint comes of weight.—L. P. Haskell.

In answer to your question No. 115, in the February issue of the *Dental Brief*, I would say that there is certainly something radically wrong when weight is relied on to keep a lower denture in its place.

In the first place a perfect impression is nine-tenths of the battle, and to obtain such the impression trays should be rather deep and narrow, so as not to allow the plaster of Paris to force away from the ridge and give you an impression which may look very sharp and good, but yet is not, and your work is futile.

Second, after the tray with the plaster of Paris has been placed into the mouth, hold it firm, and after a few moments have the patient move the jaw in as many positions as possible. It will be found upon removing the tray, that you have a perfect impression of the ridge and the line of muscles while in action. Then proceed as usual, only making the denture as light as possible, and you will find success has crowned your efforts.—J. D. Kendig, Manheim, Pa.—*Dental Brief*.

A DENTIST AND THE COCAINE HABIT.

Dr. G. W. NORRIS has published in the *Philadelphia Medical Journal* of Feb. 9th last a case of the cocaine habit of 10 months' duration treated by complete and immediate withdrawal of the drug. The case was that of a dentist, aged 30 years, who 10 months prior to admission to the Pennsylvania Hospital had suffered severely from hæmorrhoids, for the relief of which he had used cocaine locally as a rectal injection. Relief of pain was obtained, but he nevertheless continued to take the drug in daily increasing doses, and after some time by the hypodermic method, on account of its stimulating and exhilarating effect. At the time of admission to hospital his daily dose was 16 grains of cocaine hydrochlorate. One result of the cocaine habit was that time seemed to him to pass very rapidly, minutes seeming like seconds, and he experienced a continuous, voracious, insatiable appetite. His energy and his application to work, however, declined, and he developed a tendency to procrastination. Insomnia was constant unless he took

cocaine, upon the injection of which in small doses he slept well for one or two hours, when its repetition was necessitated. Single large doses kept him awake. For several months he had been troubled with hallucinations of hearing, and he avoided street-cars and public gatherings because in such places he heard voices accusing him of being a "cocaine fiend." At night he would wander from room to room in his efforts to escape the voices which he heard talking about him, calling out, "Look, he's going to take another!" and, while reasoning with himself on the subjective character of his troubles, yet he was impelled by their vividness to flee from them as from realities. During the week prior to admission he had had syncopal attacks whenever injections were omitted for more than two hours. The treatment adopted after his admission to hospital consisted of the complete withdrawal of the drug and the administration of one-thirtieth of a grain of strychnine sulphate every fourth hour, and of twenty grains of sulphonal every two hours. On the first night he slept fairly well, on the second night he required no hypnotic whatever and only the medication with strychnine was continued. He rapidly became well and in a few days volunteered the statement that he felt like his former self for the first time for many months and that time once more seemed real to him. He complained of no craving for the drug and was discharged from hospital a week after admission as cured, though advised to keep himself under medical surveillance for a longer time.—*Lancet*.

METHOD OF CONSTRUCTING FULL UPPER DENTURES.

By Dr. D. H. PAYNE, Decatur, Tex.

My experience has led me to believe that the most comfortable and satisfactory use of an upper plate depends on these points: Perfect adaptation to the gums; relief from excessive pressure on the hard palate and muscular attachments; slightly increased pressure around the margin of the plate; thin and light as is consistent with strength; and perfect articulation.

To fully outline my methods of obtaining these essential features in a full upper rubber denture, I will begin with my plan of taking the impression.

Method of taking an Impression.—After selecting a tray of proper size, with a pair of curved plate shears cut away the rim, so that when tried in the mouth it will rest entirely on the gums. (If for a lower case, cut away both labio-buccal and lingual rims). Rebuild the rim with soft wax, warm and press in place in the mouth. Remove tray, and trim wax when necessary. Warm and replace in the mouth, and repeat this until the labial and buccal muscles have perfect freedom without tending to dislodge the tray. Take impression with plaster, or equal parts plaster and impression compound. Then draw a line across the palatine portion, which shall indicate the posterior edge of the plate. With a sharp knife, make a shallow incision about one-tenth of an inch anterior to this line, extending each side to near edge of depressions corresponding to the tuberosities. Trim away a thin layer of the palatine portion from this incision forward to near the gum portion, trimming rather deeper over the "hard palatine ridge." Varnish with thin collodion, and dust this surface with talcum, brushing away all loose powder with a large camel's hair brush.

Treatment of the Model.—The model made from this impression will have a hard, smooth and almost polished surface. Take a round, pointed instrument and make a shallow groove around the model on a line which shall indicate the labial and buccal margins of the plate, taking care not to encroach on the muscular attachments and mucous membrane connecting the gum with lip and cheek.

Mould articulating plate of modelling compound, leaving the smooth, beaded edge as you would on the plate. Fit in the mouth, and trim or build out until lips have proper contour. Build down to lip line with hard, tough wax, add thin layer of soft wax, complete articulation and mark mesial line. Fit articulating plate to model, and trim upper edge of the model on a line with labial surface of the plate. Attach to this edge with varnish a strip of writing or asbestos paper extending to the canine prominence each side. Trim even with lip line and cut through mesial line. This will perfectly represent the mucous membrane of the lip, and can be turned up out of the way when desired.

When the teeth are set up, the bisected edges should just meet to give lip the proper contour.

Before packing, varnish model with collodion and the plaster will not adhere to the plate as when sandarach is used, and plate will have a smoother and more polished surface.

The posterior margin of the plate will sometimes, though seldom, rest too hard on the hard palate. This can be more easily remedied by polishing down than if the impression had been cut away at this point, which latter would be purely guesswork. A well finished plate will have no thick, rough or sharp edges.

A faithful observance of these points enables me to make a plate as thin as desired, that will not rock over the hard palate, that will not be dislodged by action of the labial and buccal muscles, and one in which the whole plate is a "suction chamber."

I use the term "suction chamber" for want of a better, since between the gum and a perfectly adapted plate there is no air or vacuum.—*Items of Interest.*

THE IMMUNITIES AND PROCLIVITIES OF THE ARAB RACES.

At a recent meeting of the Société de Biologie, in Paris, M. Remlinger called attention to the immunity of the Arab to typhoid fever and other diseases of the digestive tract, and his susceptibility in regard to pneumonia, phthisis, and other affections of the respiratory organs. He attributed these peculiarities to the fact that the Arabs were accustomed from infancy to drink contaminated water, and that they had thereby undergone a kind of immunization relative to enteric fever and kindred diseases. On the other hand, from always breathing the pure air of the deserts their lungs were particularly liable to suffer from atmospheric impurities.—*British Medical Journal.*

Always build up the front wall of a filling first, and then ask a first year's student if "he would mind doing the little bit at the back." Perhaps an officer would oblige; it always gets one into the way of working with the mirror.

“ALLOYS,” OLD AND NEW.

By HERBERT L. WHEELER, D.D.S., Worcester, Mass.

The first that is known of amalgam for the purpose of filling carious teeth was when M. Taveau, of Paris, advocated the use of what he called silver paste for permanent fillings in 1826. Four or five years later two Frenchmen by the name of Crawcour began to advertise the stuff in America, under the name of the Royal Mineral Succedaneum, meaning by this, I suppose, a mineral substitute, which of itself should have stamped them as fraudulent adventurers. The ease with which the material was manipulated soon brought it into use, especially with the indolent members of the profession, also those who lack manual dexterity, and a large class which are still with us,—those who hope to succeed financially by offering the public some novelty as a bid for practice, rather than conservative, conscientious work. In proportion as this material was taken up by the slovenly and those with marked incapacity, it was denounced by the reputable and able practitioner.

Gradually some of the more able men of the profession began to carefully experiment with the new plastic, until finally, about 1855, Dr. Elisha Townsend, of Philadelphia, gave the first formula for an alloy that was based on any foundation other than empiricism and quackery. This was : Silver 4 parts, tin 5 parts.

Gradually the fierce discussion that the use of this material had fomented resulted in honest investigation as to its true merits and demerits, and culminated somewhere about 1877 in the formation of what was known as the “New Departure Corps,” of which Dr. J. Foster Flagg was the moving spirit. And the work commenced and carried on by this organization has done more to place alloy-making and the use of amalgams upon a scientific basis than any other force that has been brought to bear upon the subject, and for years, until the work of Dr. Black, the results arrived at by them have stood as authority, and it is doubtful if a majority of their conclusions do not still stand.

In one point the makers of alloys and users of amalgams of earlier days differed from those of the present. The fundamental idea of the “New Departure Corps” was that amal-

gam was more compatible with tooth-structure than gold. Especially Dr. Palmer and Dr. Flagg advocated this theory, and by some mysterious and miraculous relationship of silver or copper, or both, to tooth-structure the earlier amalgam compounds were supposed to save teeth, especially the frail, chalky, or soft structures,—or rather what was considered soft and chalky at that time. Many now think, from Dr. Black's experiments, that there is very little variation from a single standard of hardness in the structure of any teeth from the human mouth. However, we must acknowledge that if the compatibility theory was wrong its exponents produced alloys that made amalgams that saved teeth, and saved those that were considered hopeless by the gold worker.

Silver, tin, and copper were considered metals *par excellence* that were compatible with the tooth-tissues, and gold, zinc, and the less often used metals were used simply as modifiers to control either bulging, or colour, or both. In one thing they utterly failed : that was to produce an amalgam that would keep its original form and colour in the cavity, and it is to these last qualities that our later-day experimenters have fastened their attention.

The older school of amalgam makers certainly succeeded in producing alloys that would save teeth for years, though they did discolour and crevice badly.

Dr. E. C. Kirk says of alloys, in an article published in the *International Dental Journal* for April, 1895, before Dr. Black's experiments were published, "There are now to be found and are everywhere obtainable alloys that fulfil their function as savers of teeth, under certain conditions, in a manner unapproached by any other material." And in the "American Text-Book of Operative Dentistry," edited by Dr. Kirk, is an article on Plastic Filling Materials by the late Dr. H. H. Burchard, in which he says, "The formula given by J. Foster Flagg as affording the most stable alloy for amalgam—60 silver, 35 tin, 5 copper—was found by Dr. Black to be that giving the highest degree of resistance to change of form, to flow, and to crushing."

This shows that whatever may be said of the theory of compatibility, the old amalgams, like Lawrence's,—which was : Silver 47½, tin 47½, copper 5,—and the Submarine of Flagg's, the formula of which is given above, and Flagg's Contour,—Silver 64, tin 33, gold 3,—and Arrington's, which was similar to Lawrence's, did save teeth, and saved them for years, though they all discoloured or creviced badly.

The physical properties of dental amalgams were not understood until the exhaustive researches of Dr. Black, of Jacksonville, Ill., were published in the *Dental Cosmos* in 1895, and later. These experiments have certainly changed the whole field of alloy manufacturing, and given an impetus to the sentiment that would attain in an amalgam a material similar in its properties to gold; that is, a plug for carious teeth that will not change form or colour. All of the amalgams before used have either shrunk or expanded and discoloured. Dr. Black's work has resulted in a storm of alloys warranted not to shrink, and to expand perhaps one-tenthousandth of an inch, to hold colour, and to stand the stress of mastication and not flow. Whether they will come up to this standard only time and great skill and accuracy in mixing will decide, and this is modified by the care with which the alloy has been made and annealed. Dr. Black has shown conclusively that the formula is not as important in making an alloy to fulfil certain requirements as the proper annealing at the right temperature, and that, after all this is done in the most accurate manner, the mixing may change or seriously modify the whole result. Nevertheless, it seems to the writer that no sure, practical data from the busy practitioner can be secured until the formulas of alloys on the market are given to the profession, or, if not given, demanded.

The dealers feel that it is hardly fair to them to give the formula; but analysis is possible, and the numerous modern alloys follow pretty nearly the same formula, being four-metal alloys, except The S. S. White Dental Mfg. Co.'s new Dentalloy, which I am informed is a two-metal alloy. As far as I know, "Fellowship" alloy is one of the oldest of the alloys based on Professor Black's researches, and its formula, according to Booth, Garrett, and Blair, of Philadelphia, is: Silver 67.73, tin 26.33, copper 4.71, zinc 1.23, and the Twentieth Century alloy is very similar, evidently a copy; its formula, as analyzed by the same parties, is: Silver 60.81, tin 27.32, copper 4.39, zinc 1.51. "Rego" and "Triumph" alloys are practically the same. If there is any great difference in these alloys, it must be caused by the difference in annealing.

Making a few tests with ten or more amalgams from old and new formulas, in glass tubes, I find that all the modern alloys expand, yet this does not seem to stop leakage when red ink is applied, though the new Dentalloy of The S. S. White Dental Mfg. Co.,—which is probably: Silver 72.5, tin 27.5,

—properly annealed, showed less tendency to leak than any of the lot. It is a question though, if the value of tests in glass tubes is not open to decided objection as an accurate scientific test. The real question as to the value of modern amalgams as savers of teeth must be decided by time and clinical practice.

The only difference I can see between the advocates of amalgam a few years back and the present day is this: Then amalgams were supposed, in some unexplainable way, to have therapeutic value when placed in so-called soft teeth; to-day the desire is for a perfect mechanical plug that will not change shape or colour, a filling whose action is similar to gold. It is too early yet to decide which of these ideas has produced the best material for saving teeth. The writer uses both, and is trying in actual practice to solve the problem by comparison of results.—*Cosmos*.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, Monday, February 25, 1901.

Mr. John Ackery, M.R.C.S., L.D.S. Eng., President, in the Chair.

The minutes of the previous meeting were read and confirmed.

THE LATE QUEEN VICTORIA.

The President communicated to the meeting the reply which had been received in acknowledgement of the vote of condolence of the death of Her Majesty Queen Victoria, passed at the last meeting.

The PRESIDENT said that during the past week there had occurred the death of M. Lecaudey, Chevalier de la Légion d'Honneur. The event was one of which the Society should take notice. M. Lecaudey was practically the founder of the Ecole Dentaire of Paris.

Mr. MUMMERY moved that the Society send a letter of condolence to the family of M. Lecaudey. That gentleman might be said to be the father of dentistry in Paris.

The motion was carried unanimously.

The following new members signed the Obligation Book and were formally admitted: Messrs. H. W. TREWBY and CHARLES H. BUBB.

Mr. WILLIAM HERN showed to the Society and presented to the Museum, some specimens of mummy jaw bones (two mandibles and two superior maxillary bones) brought from Egypt by Mr. Blackden, (to whom the Society is indebted for one of the mummy heads in its possession,) who states that the bones are of extreme age, having been taken from tombs at Beni Hassan where the doubled up burials of the earliest inhabitants of Egypt are found.

One specimen, the mandible of a young adult, shows a well marked impacted wisdom tooth on the right side; this tooth is erupted in a semi-recumbent position, with its anterior cusps impinging against the distal surface of the second lower molar. The posterior surface of the crown is exposed to mastication, and a small, well marked facet on the distal surface of the tooth shows that it has been in antagonism during mastication with the upper wisdom tooth.

The teeth generally are sound, and about normal in size, although some, and especially the sixth-year molars, are much worn by surface attrition. On the lingual surfaces of the molars some thin ledges of salivary calculus are still attached. There is no sign of serious inflammation having occurred about the alveolar margin surrounding the wisdom tooth.

This specimen, the age of which my friend estimates as at least 4,000 years, goes to show that impacted wisdom teeth are not nineteenth century freaks, nor even late civilization maladies, as has been supposed.

Hippocrates, who lived nearly 500 B.C., mentions disorders caused by wisdom teeth and appears to have been cognisant of the anomalous positions they sometimes assume, attributing these abnormal positions to a special race of men.

The PRESIDENT thanked Mr. Hern for his communication, and stated that Mr. Hern had offered to present the specimen of the mandible to the Museum.

Mr. H. LLOYD WILLIAMS read the following communications:—

ABSORPTION OF ROOTS.

The first case I have to bring to your notice is a left maxillary first molar, showing a very extensive absorption of the posterior buccal root; the root is hollowed out in the manner we are so familiar with in temporary molars, and the pulp canal is exposed for a portion of its course.

The tooth was extracted at the Dental Hospital of London, January 22, 1901, the age of the patient was 20.

There was no suspicion of the condition before extraction, there was periostitis and a history of intermittent pain of long standing; on the proximal surface there was a large amalgam filling.

Mr. Winder, to whom I am indebted for notes of the case, showed me the tooth before the patient left the hospital, and we were able to both feel and see the crown of a tooth in the socket of the molar just removed. The patient had lost some teeth, but the first bicuspid was present, and it was inferred both from the signs and from questioning the patient, that the tooth felt was the second bicuspid.

On the right side there was some fulness over the maxillary first molar, and the second bicuspid was absent, but there was no discomfort whatever.

Of absorption of the roots of the second molar by the erupting third molar, and absorption of the lateral or first bicuspid by the erupting canine there are ample records, but I am not acquainted with such an instance as the one I have recorded this evening.

The second is a mandibular right first bicuspid; on the anterior aspect of the root occupying the middle third is a well marked hollow extending to and exposing the pulp canal for a short distance.

The tooth has the appearance of having been scooped out from above downwards towards the apex, so that above there is gentle sloping, and below the edge of the hole is higher than the floor.

In October, 1900, a gentleman, aged 29, came to me with a large posterior cavity in the mandibular right first bicuspid. There was a chronic abscess discharging by a sinus. In removing the septic pulp and enlarging the canal I had the misfortune to break the drill. I entirely failed to remove the broken piece, and therefore took such precautions as I could to render the drill and its surroundings aseptic.

The root was filled with gutta percha, care being taken to

surround the drill as far as possible. The tooth became tender and remained so for a few days. It then recovered and remained well until January, 1901, when my patient noticed the return of the sinus; there was no tenderness.

The filling was removed and another attempt to remove the drill was made, still without success. The gutta percha removed was not in the least offensive to the smell. The tooth was dressed again, but at the end of a week was no better. It was then considered whether the tooth should be extracted or the apex containing the fixed end of the drill excised; very fortunately the extraction was decided upon, more because of the patient's bias than from any clearness on my part.

When the process of absorption commenced it is of course impossible to say definitely, but it is a fair inference to date it from the period of tenderness subsequent to the filling. I think it very probable that I broke down the wall of the canal while enlarging it in my second attempt at extracting the drill. The drill is firmly fixed in the apex.

To sum up: If my data are correct, we have then a hole of this magnitude absorbed in three months.

There is apparently no method by which the actual condition of such a tooth can be diagnosed.

The PRESIDENT said that he understood that Mr. Caush had some specimens bearing on the subject of the last communication.

Photographs showing the condition of the teeth referred to were thrown on the screen.

Mr. D. E. CAUSH said as there were specimens of root absorption to be brought before the Society to-night, he thought the two specimens that had come under his notice within the last few days would be interesting. The first was that of a second molar from the left side of the mandible; the wisdom tooth had not been erupted, but has tilted forward, and as a result of the tilting and noneruption of the tooth, a very large cavity has been produced by absorption of the cementum or dentine until the pulp canals were about to be exposed. The second specimen is that of a mandibular left bicuspid, showing a large cavity extending from the apex of the root towards the crown; the absorption in this case has been produced by the development of an abscess.

Mr. F. J. BENNETT said that if he was not out of order he should like to allude to Mr. Hern's specimen, and request that a figure of the inclining wisdom tooth be put in the

Transactions, and the dimensions of the jaw should be inserted in the Transactions if Mr. Hern could spare time to give them. The specimen was very unusual in many ways, and only an illustration and the actual dimensions could give an adequate idea of its singular character.

Mr. SPOKES said that he should like to ask Mr. Lloyd Williams what sort of a drill it was that was left behind in the tooth. He knew that there were two parties, those who drilled canals and those who did not. He belonged to the class which still drilled root canals, and he had a great deal of satisfaction from the use of the Beutelrock drill, which was no doubt known to the members. One or two of the drills had broken, but he had never had one which had broken low down. The breakage was always at the shank, and therefore there had been absolutely no difficulty whatever in withdrawing the piece. The drill was a self-clearing one, and it was claimed that it was tempered by some peculiar process. It came from Leipsic, and it was not made in England, although he did not know why it should not be. As far as he could understand, the peculiar tempering of the drill consisted in the fact that it was not tempered at all. At all events, the drills travelled round curves very nicely and did not seem inclined to break. He would like to know whether Mr. Lloyd Williams had used the Beutelrock drill, and whether he could assure the Society that the particular one which had broken was not a Beutelrock.

The PRESIDENT said that he thought that Mr. Bennett's suggestion that an illustration of the specimen shown by Mr. Hern be inserted in the Transactions was a valuable one, and no doubt the Editor would take it into his consideration. These cases of absorption were interesting. They were not rare cases, but it was not often that they got cases brought before their notice in which there had been definite indication of the period at which the absorption commenced. The larger number were cases in which they had not detected the condition at all until the tooth was removed.

Mr. SCHELLING showed a lantern slide illustrating his communication read at the January meeting.

Mr. LLOYD WILLIAMS said that he had an upper central which had been sent to him that day by Mr. George Thompson. Mr. Thompson stated that it had been a replanted tooth which he extracted after two years, not on account of the tooth being loose, but because the laterals were very large, and he was very much surprised to find that all the root was

absorbed. The root portion, such as it was, was very ragged, and he (Mr. Lloyd Williams) had some suspicion that these cases were absorbed right across, and that there was often a little portion of root left in the gum. He had one case which showed that very clearly, where he was fortunate enough to get away a little bit of root as well as the crown. Mr. Caush had showed them a second molar absorbed by the third molar. Cases of that sort they were all fairly familiar with, but he had not been able to get a record of a case of the first molar being absorbed by a second bicuspid in the way that they knew of in temporary teeth. In reply to Mr. Spokes, he might say that he used the Beutelrock drill, but not for very large canals. It did not clear the holes out clean enough in an intensely septic case with a large canal. The case to which he had referred was of that kind; the drill used was the ordinary Gates Glidden drill.

The PRESIDENT said that Mr. Hopewell Smith had received a letter from Mr. Duckworth that morning, expressing his regret at being unable to attend. He was sure that they would all regret the fact that Mr. Duckworth was prevented from coming to read in person the paper which he had prepared. Mr. Duckworth had sent his notes and Mr. Hopewell Smith would read them.

The paper is published at page 294.

DISCUSSION.

Mr. F. J. BENNETT said that he could hardly suppose that ^{su}ch an obscure subject as the present could be settled that ⁿⁱght. The subject in various forms had appeared from time to time before the Society. He believed that the last occasion was the memorable one upon which Dr. Woodward read a Paper akin to the present one. At that time he (Mr. Bennett) drew attention to the question of enamel nodules on the fangs. He believed that, whatever solution was found to the question of vestiges between the teeth in man and other animals, the enamel nodules would have to be taken into account, that was a phase of the condition. They had seen them sometimes on the buccal surface and sometimes on the palatine surface. In other cases they appeared to be quite calcified and detached from the other teeth. A small stretch of imagination would include the enamel nodule as being, in the process of development, united and combined with the neighbouring tooth. In fact, if sections were made of the enamel nodules they would

be found to be perfectly formed teeth ; the planes of the tubes ran in connection with the nodule, not to the tooth to which it was attached, and there was evidence that it was a toothlet in some way attached to another. When he made his small investigations he was anxious to prove that these things were to be found more especially upon the palatine surface, and it appeared to him that the enamel nodules, existing as they did under the first, second, and third molar teeth, were really to be regarded as a dwarf second or permanent dentition, and that the first, second and third molars really belonged to the temporary series. The bicuspid was the last erupted tooth of the second dentition. At all events, the subject was one which was well known to be merely "in the air," and they could assume that they were merely tags of the enamel organ or really vestiges of various dentitions. He did not quite follow in the paper how it was that, if the vestiges which were shown really belonged to the third and fourth pre-molars, they should find them between the first and second, or the second and third permanent molars. In any case, thanks were due to Mr. Duckworth for having brought the subject before the Society.

The SECRETARY said that Mr. Duckworth had sent three or four very tiny fragments as specimens. One piece which he had examined was very gritty, and he (the Secretary) concluded that it was calcareous in nature. At Mr. Duckworth's request he had written a microscopical report on the subject. It was as follows :—

REPORT ON "DENTAL" FRAGMENTS.

3373 (*a*) and (*β*). A small piece yellowish, gritty, non-elastic and extremely brittle.

Microscopical Appearances.—Homogeneous indistinct masses showing no structure. Impossible on account of brittleness to get thin sections. Not dental.

3354 (*γ*) Small mass, whitish, not gritty, not brittle, a degree of elasticity observed in grinding.

Histology of Tooth (*δ*).—Transverse section of dentinal tubes near periphery, of the root portion. Their branches in places very distinct. Granular layer very pronounced. Cementum large in amount and thickness, practically structureless.

2154 (*e*) Two pieces.

Histology.—Prisms (probably enamel) chiefly seen in transverse section though sometimes longitudinally cut. Not very brightly outlined, nor possessing marked striæ, never-

theless clear and unmistakable. Numerous large tubes or channels with bulbous or rounded extremities run here and there throughout the tissue, probably produced by a saccharomyces. In a few places, small tubes cut transversely.

2154 (ξ) *Second piece*.—Transverse section of dentine, extending probably from pulp (no containing cavity visible) to periphery.

Root portion of tooth (ξ). Dentinal tubules are marked, and where filled with detritus from grinding, very black. Cementum thick, few lacunæ and canaliculi, but inter-cemental lines very apparent. Traces here and there of fungoid burrowing.

2154 (η) *Stained Portion of Sections*.—Transverse section of dentine. The tubules in places filled with fuch-sine stain. Cementum practically structureless. Large channels produced by saccharomyces confined in this preparation to the cementum. Granular layer marked.

Mr. BALDWIN said that whenever he found supernumerary teeth in the molar region, they had always been between the second and third molars, on the buccal side in the groove between, sometimes detached, and sometimes attached to the third molar. The inclination was to look upon supernumerary teeth as representative of the teeth which were present in the typical mammalian dentition, and not normally present in man, but seeing that man had the typical number of molars, it was difficult to account for the supernumerary teeth far back in the molar region on this hypothesis.

A discussion on the paper read by Mr. Constant at the November meeting on the Etiology of Superior Protrusion was resumed, which will be given in our next issue.

Dental News.

ALLEGED SLANDER.

When Mr. Justice Kennedy resumed his seat on the Bench after the adjournment, at the Leeds assizes, reference was made to the case of Constant v. Kennedy. This was an action brought by Mr. T. E. Constant against Mr. John

Bannerman Kennedy, both parties being dentists, practising at Scarborough, in respect of alleged slander. Mr. E. Tindal Atkinson, K.C., and Mr. Waugh had been retained for the plaintiff, and Mr. Scott-Fox, K.C., and Mr. W. A. Meek for the defendant.

Mr. Scott-Fox, in bringing the case before his Lordship, said he was instructed on behalf of the defendant to state that anything he had said against the plaintiff was said under a misapprehension. Defendant regretted that he should have been led to make any statements which were inaccurate and desired to withdraw, in the handsomest manner, all reflections upon the plaintiff. The record would be withdrawn.

Mr. Atkinson, on behalf of the plaintiff, said it was an action for slander, brought on by one dentist against another. The allegation complained of, which undoubtedly had some circulation to the plaintiff's detriment at Scarborough, was that he had been guilty of unprofessional conduct in regard to some patient to whom the defendant thought he was entitled. The object of the action was only to establish that there was no foundation for the statement, and this object had been obtained by the course taken.

The case was then withdrawn.

APPOINTMENT.

Mr. Barron J. Rodway, L.D.S.Eng., has been appointed Dental Surgeon to the children of the Salford Union.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by Correspondents.]

To the Editor of the "British Journal of Dental Science."

Dear Sir,—I wish to correct a statement made in your Journal last month re McDonalds, Limited. I am not, nor was I ever a shareholder of the Company, neither am I interested, nor in any way connected with the establishment.

Yours faithfully,

EDWARD CORBETT, L.R.C.P.I., L.D.S., &c.

Penzance, 25.3.01.

* * It will be noticed that Manchester was the address of the Mr. Edward Corbett whose name appeared in the list of subscribers in the McDonald Company.—Ed. B.J.D.S.

Dental Hospital Report.]

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of FEBRUARY, 1901.

Number of Patients attended	1272
Number of Extractions	394
Number of Extractions under Anæsthetics	450
Gold Stoppings	194
Other Stoppings	483
Miscellaneous { advice, temporary fillings, sealings, dressings, &c.	578
Gold and Porcelain Crowns	16
Inlays	4
Total	2119

G. H. MEEK, L.D.S.,

B. J. RODWAY, L.D.S., *House Dental Surgeons.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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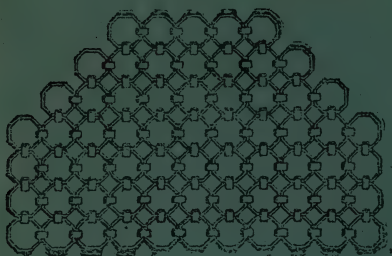
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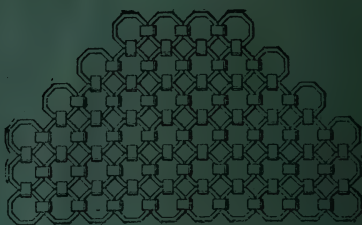
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Mechanical Dentistry—E. LLOYD-WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., L.S.A. on Wednesdays

at 5.30 p.m. (Winter.) (Demonstrator—MR. W. F. FLOTH.

Metallurgy in its application to Dental Purposes—DR. FORSTER MORLEY, M.A., F.I.C., F.C.S., on

Thursdays at 5.30 p.m. (Winter.) (Demonstrator—PERCY RICHARDS, F.I.C., F.C.S.)

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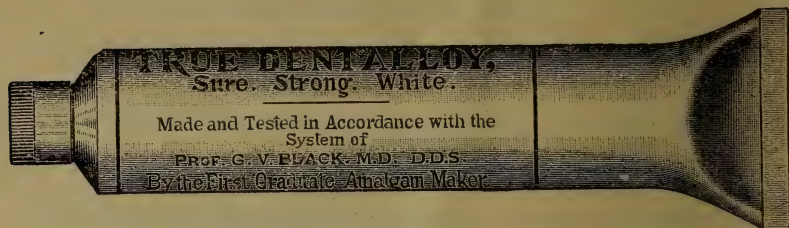
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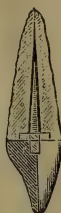
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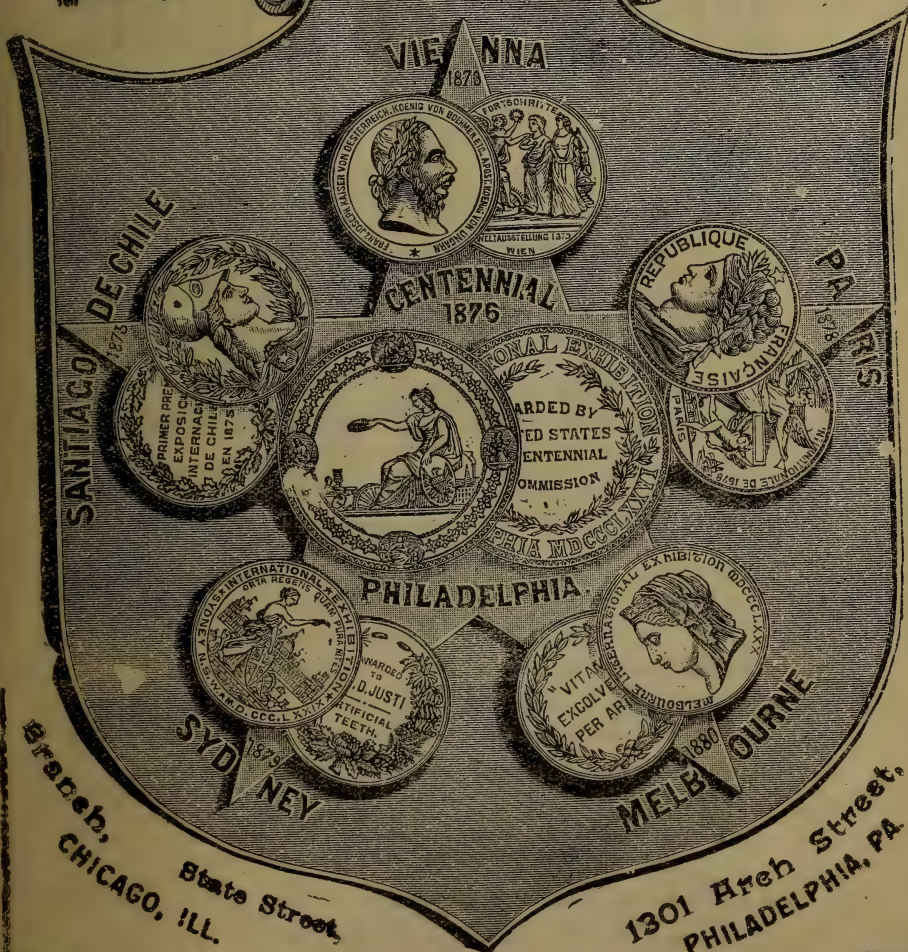
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British Journal of Dental Science.

No. 798. LONDON, APRIL 15, 1901. VOL. XLIV.

THE CAUSATION OF SUPERIOR PROTRUSION.*

By W. ARBUTHNOT LANE, F.R.C.S. Eng.

There has been much discussion of late amongst dental surgeons as to the causation of the forward protrusion of the incisors of the upper jaw, which is seen so frequently in our present state of civilisation, and many and various reasons have been put forward as to its causation.

I propose to consider the subject from the point of view of the anatomist and general surgeon, and to endeavour to throw some light upon it.

We must remember that the functions of the bones of the face are three in number.

(1) To surround the passage by which air alone is transmitted to the lungs.

(2) To sustain the strain exerted by the muscles of mastication, and to transmit and diffuse the resistance offered by the crushed food in the forcible approximation of the teeth during its attrition.

(3) To surround and protect the eyes.

Experiments are made by nature on all sides, showing the

* Communicated to the Odontological Society of Great Britain.

influence which the exercise of these several functions exert upon the skeleton, all capable of accurate measurement and definition. If an eye be removed early in life the degree of development of the orbital space which contained it, and of soft parts which surrounded it, is less than that which exists on the opposite side. Such imperfect development of the skeleton as arises in consequence of the absence of the pressure exerted by the globe of the eye is very limited.

If the permanent teeth are removed early in life, the alveoli waste and the bones along which force is distributed either as pressure or strain, become thinner and thinner. If in the growing child, however, the teeth are prevented from performing their normal functions, as for instance, by ankylosis of one or both temporo-maxillary articulations, we find that the lower jaw develops much less rapidly than does the upper, showing two things:—

(1) That besides the presence of the teeth there is an additional factor controlling the development of the upper jaw that does not influence the lower to anything like the same extent when movement of these bones upon one another does not exist.

(2) That in a normal skeleton the lower jaw is dependent for its perfect development upon that of the upper.

This photograph illustrates the condition of a girl aged 12, operated on for bony ankylosis of the temporo-maxillary articulation in 1893. The joint was destroyed when she was eighteen months old.

This shows exceedingly well the difference in the development of the two jaws under these circumstances, the upper being much larger than the lower.

Other photographs represent the same condition in a less marked degree in cases of bony ankylosis of the temporo-maxillary articulation which have been successfully operated on.

The removal of the function of the nasal cavities in the growing child produces an influence on the development of the bones of the face which is most marked and varies directly with the completeness of the loss of function, and inversely with the age of the child. The factor upon which the bones which surround the nasal cavities depend for their development is the pressure exerted upon the interior of the spaces by the air as it passes through them.

It is this pressure that increases the breadth of the nasal space and determines the degree of development of the cavities in the superior maxilla and elsewhere, which communicate directly with it.

In consequence of this lateral development of the nasal spaces, the anterior surface of the upper jaw is rendered prominent anteriorly and the malar bone antero-laterally. For the same reason the alveolar arch is widened.

Pressure is exerted in a downward direction, depressing the arch of bone which separates the mouth and nasal cavities, and tending also to increase the breadth of the alveolar arch of the upper jaw.

A vertical transverse section through a normal upper jaw shows at a glance the directions in which force, exerted at right angles to the surfaces of the nasal space, tends to produce change in surrounding structures. Again, this force exerts a pressure also in a forward direction, tending to project the nasal bones and septum anteriorly.

The atmospheric pressure upon the interior of the nasal cavity tends to increase the length of the alveolar arch of the upper jaw, providing ample room for the teeth, to enlarge the interval between the alveolar margins laterally, to make the anterior portion of the arch more rounded and convex forwards, and to diminish the height of the palate. If the lower jaw is capable of moving normally upon the upper this atmospheric pressure exerts an indirect influence on its develop-

ment, which, as I have shown, can be readily measured in cases in which such movement is in abeyance.

Now let us consider in detail the several conditions which result from the more or less complete loss of this developmental factor: but before doing so I will call your attention to the general condition of the subjects in which such loss of function is found.

Owing to our present state of civilisation there exists a considerable proportion of children whose mechanical relationship to their surroundings differs largely from that of the vigorous and robust. The most marked feature in their condition consists in a deficient performance of the respiratory function, and the degree of diminution in their vitality below the normal standard can be readily determined by the amount of such deficiency.

These children possess an amount of energy commensurate with their respiratory capacity. They obtain their scanty supply of oxygen by the rapid and imperfect contraction of the diaphragm. Their chests being retained habitually in a position of complete expiration.

Here are two photographs which represent the attitude assumed by such a child. It is what I have called the "symmetrical attitude of rest of the trunk," popularly described as round shoulders. Observe the prominence of the abdomen, the flattening of the front of the chest, and the projection of the lower angles of the scapulæ. This represents only the very ordinary type, the more marked features being shown in another photograph, one of a girl, aged 15. In this case the bones have altered materially in form, in obedience to the law that the rate of bone formation in the several parts of a growing line varies inversely as the pressure transmitted. Such children, because of the habitual assumption of attitudes of rest, develop a fixation of the asymmetrical resting position of the trunk (the so-called

lateral curvature of scoliosis), knock-knee and flat foot.

By their deficient oxygenation the resisting capacity of the tissues to the entry of organisms is correspondingly diminished, and in the young subject the naso-pharynx is the area of the body in which organisms most readily secure a foothold. In consequence the child is affected with a sequence of colds, the organisms frequently extending their area of infection to the larynx, trachea, and even to the smaller bronchial tubes, producing laryngitis, bronchitis and bronchopneumonia.

The infection of the mucous membrane of the naso-pharynx produces an enlargement of the glandular tissue in the naso-pharynx (called the pharyngeal tonsils), of the faucial lymphatic tissue and of the lymphatic glands in the neck.

The result of all this is that the nasal cavities no longer transmit air, or only a small proportion of the normal amount, and the bones of the face are for the time being deprived more or less completely of the mechanical factor on the presence of which they are dependent for their complete development. In consequence the nasal cavities are narrow and the spaces that communicate with them laterally are small, and the bones surrounding them have not their normal prominence. The septum not uncommonly deviates from the vertical, or presents lateral excrescences called "spurs," because of the interference with its development.

Again, the length of the alveolar arch is diminished so that the teeth are crowded, the sides of the arch are abnormally close, and the palate is high, the front of the arch is displaced forwards, so that the upper incisors project much beyond the lower.

Here is a figure which represents a vertical transverse section through such a palate and alveolus, and in contrasting it with the normal it is seen at once that the differences which

exist ore clearly consequent on the imperfect development of the nasal cavities.

Again, as you see in the photographs representing "the symmetrical attitude of rest of the trunk," the bridge of the nose is dwarfed, being less prominent than it should be, the nasal bones and the nasal processes of the upper jaw are concave antero-laterally instead of convex, giving a "pinched" appearance to the nose, the anterior nasal apertures are mere slits not moving in inspiration, and the upper lip instead of projecting below the free margin of the incisors, leaves them uncovered to a varying extent.

Many of these features are shown more clearly in this other photograph. One point of great interest about this condition of imperfect development of the nasal cavities is the rapidity with which it is transmitted to the offspring. I know no other acquired deformity which is handed down so rapidly or so markedly. On this account we find a high palate and all the other indications of imperfect development present in the young child, giving many the opportunity of regarding it as frequently "congenital," or in other words, as consequent on factors which acted on the antecedents and not on the individual itself.

That the development of the bones of the face can be materially influenced by the restoration of the influence of the mechanical factor I have proved without question to my complete satisfaction, and the amount of alteration obtainable varies with the thoroughness of the restoration, with the age of the individual and with the amount of imperfection, whether acquired or hereditary.

On this account the return to the normal type is rarely complete, and in the case of the alveolar arches, and the arrangement of the teeth, the removal of some, and pressure exerted by mechanical arrangements upon others, are very important additional aids.

THE NECESSITY FOR A SIMPLE UNIFORM
METHOD OF RECORDING DENTAL OPERATIONS
IN POOR LAW AND KINDRED SCHOOLS.*

By VERNON KNOWLES, L.D.S.Eng.

The title of my communication is one that appeals to all present this evening, hence, what it lacks in literary merit, it is hoped may be somewhat atoned for by the interest of the subject.

That something must be done in this matter is self-evident, as at the present time there is no method or system recognised by the Local Government Board for registering dental work done in Poor Law Schools, with the result, that each dental officer has to do what seems right in his own eyes in this matter, which state of things, for scientific and statistical reasons, is much to be deplored. It seems to me, that this Society is pre-eminently the one which can speak with most authority on this subject, hence, if we can formulate some simple system, which appeals to all of us as practical workers, in these and similar schools, we might bring the same before the notice of that remarkable body, the Local Government Board, with every expectation of official recognition, and hence adopted for use in all Poor Law Schools to which dental officers are appointed.

Most, if not all of you, are familiar with these books, issued by the British Dental Association, some years ago, when this question of School Dentistry first came to the fore, they were primarally, if not exclusively intended for statistical purposes, with a view of showing the deplorable state of the teeth of the children in these and kindred schools.

* Read before the School Dentists' Society.

This was most conclusively proved, and the need of systematic dental supervision made self-evident. Some Poor Law dental officers have tried to use these books in their routine work, but have been compelled to discard them, owing to the time occupied in filling in the charts, &c. ; for though these books admirably fulfilled the purpose for which they were intended, they are far too complicated for every day use in Poor Law Schools, where time is a great consideration, especially when, as is often the case, the dental officer has to examine the teeth, and do the necessary work required, for from 50 to 100 children in a day.

There being no other books, save those referred to, for this purpose, it seems high time that a suitable one should be introduced under the auspices of the Society, especially as these appointments of dental officers are, and will as time goes on, become more and more general.

Boards of Guardians do not want charts,—they would not understand them,—neither are they particularly keen on knowing whether the cavity in a stopped tooth is a crown, mesial, or distal one, but what they do require, and rightly too, is a return of how many have been stopped, scaled, regulated, extracted, &c., so that they may be able to judge, if we are worthy of our hire. As the result of a conversation with our President and our worthy Hon. Secretary, both of whom have had considerable experience in this kind of work, these proof sheets are submitted to your consideration, and which, if not adopted in their entirety, may serve as a foundation on which some system worthy of this Society may be raised.

Before bringing these few remarks to a close there are one or two points which ought to be brought before your notice in connection with this topic. 1st. Ought we not to settle what standards are to be used when employing the terms "Good," "Fair," "Bad," in relation to the state of chil-

dren's mouths, when we first examine their teeth? 2nd. Would it not be politic to agree on which notation this Society advises should be used, so that the books might be all kept alike.

In conclusion, it is hoped that this short paper on a somewhat dry subject, may have been of sufficient interest to call forth a good discussion with practical results, and if this be so, the reader's object will have been more than accomplished. With that end in view we will for the moment turn our attention to the proof-sheets, and after their *modus operandi* has been explained, each member present will doubtless have little difficulty in pointing out "things done that should have been left undone," and vice versa.

BODIES, COLOURS AND SHADOWS.*

By W. H. TAGGART, D.D.S., Chicago, Ill.

The title of my essay in this symposium on porcelain inlays is "Bodies, Colours, and Shadows." Neither one of these parts of my subject is one-half as essential in making a perfect inlay as the "know how part."

While bodies, colours and shadows may play quite an essential part in this artistic process, do not for a moment think that either the porcelain bodies or colours will ever be furnished us that can make porcelain inlay work artistic. The artistic effect must come entirely from the operator and his ability to choose the proper porcelain for any particular

* Read before the Chicago Dental Society, and published by *The Dental Review*.

case must come from natural aptitude, or a vast amount of practice. So do not put off learning this process because you think some day you will have perfect materials and then you will commence, but commence now and by the time you have acquired a certain amount of ability, by that time you will appreciate the fact that it is the "know how part" that is more essential than the materials.

There are, however, certain underlying principles that must not be lost sight of, and one of the first of these is (of course remembering that in this paper I am not expected to refer to cavity preparation, or making of the matrix) that an inlay can never be made to match a tooth when only one colour is used in its construction. Take, for instance, an approximal cavity in a central incisor extending any part of the distance from the gum margin [to the incisal edge. No matter how perfectly you may match either the incisal edge, which is one colour, and the neck of the tooth, which is another colour, the inlay will look badly, whereas if the neck had been made of yellow porcelain and the tip with blue porcelain or whatever colour was necessary to match it, and the two colours had been given a gradual gradation by blending one into the other, the effect would have been very artistic.

The main reason a cement filling in a front tooth looks so inartistic is because it is all of the one colour and yet this cement may match beautifully either the tip or neck, but cannot match both. So I say to get correct effects blend your colours. Another principle, you can get much better effects if the bulk of your porcelain is made of the yellow porcelains and the colours to match the tooth put on this, in this way you get the soft blending of the colours and the rays of light do not pass as they would through a piece of glass or a piece of porcelain all of one colour. If you examine closely a natural tooth or a beautifully coloured artificial

tooth you will almost always find the yellows predominate on the palatine side. Another thing that will affect the colour of a porcelain inlay is the thickness of it. Supposing the bulk of the filling is made of yellowish tinge and you choose a certain colour of porcelain to veneer over this to match the tooth, you will find you can get several different shades according to the thickness of the porcelain, and here again comes in the advantage of the know how part.

Another thing that will affect the shade of a given colour of porcelain is the way in which it is packed. So one dentist who condenses his porcelain thoroughly before it is baked will get a porcelain several shades darker than one who carelessly packs the porcelain, for the reason that air spaces in a given colour of porcelain have a tendency to lighten the shade. So you see there are several conditions which govern the colour of the baked porcelains regardless of the colour in the porcelain itself.

After these few words on the colours I now come to the question of bodies. Shall it be the high fusing requiring a platinum matrix or the low fusing using a gold matrix? My preference has been and is now in favour of the high fusing. Why? Because it seems to take a more natural or rather vital colouring. The low fusing porcelains get their colour from the pigments mixed with them the same as we colour white lead paint by mixing so much of any colouring matter with it; whereas the colouring in high fusing porcelains is brought out by the chemical changes which take place at the high temperatures necessary to fuse it and this gives the more lifelike appearance to the porcelain. The low fusing, while made in a great variety of colours which we can apparently match, always seem to have a muddy opaque look as compared to the vital, translucent look of high fusing porcelains.

At this point would be the logical time for me to try and

persuade you against that foolish notion that the gold can be better adapted to the walls of the cavity than the platinum, but it will do no more than give it this little slap merely to show you that I am awake on this point and only wish I could have had that part as my subject for the evening.

A word as to whether we shall use inlays or not. I say yes, but do not be indiscriminate in their use. Choose your cases and only put them where the necessity for artistic effects outweighs all others. Not but what they are lasting and satisfactory in saving the tooth from decay, but for every other quality except looks, always bank on gold as a filling material. Remember that in making these fillings the results you get will depend on your ability to handle the material and not on the material itself, bearing in mind that some dentists can put in good gold fillings with any gold made, while others cannot put in good gold fillings with the best gold that was ever manufactured.

But do not be discouraged about your first results. Remember it is a new line to you and will require a patience and perseverance and skill which no other part of dentistry requires, but when you once begin to get satisfactory results you will be amply repaid for your efforts.

TO GET RID OF GUM TISSUE.

Gum tissue often interferes with dental operations. It may be cut away, and kept out, and pushed away from the cervical margin painlessly, by using temporary stopping, gutta percha base plate, or gutta percha forced tightly up against it and filling the entire interproximal space, and allowed to remain for about ten days.—*Stomatologist*.

British Journal of Dental Science.

LONDON, APRIL 15, 1901.

INTERNATIONAL RECIPROCITY IN DENTAL PRACTICE.

As some of our readers may have noticed, the question of reciprocity of medical practice has been under the consideration of our General Medical Council, more especially in regard to Italy. At a meeting of the Executive Committee on the 25th ult, a communication was received from the Privy Council stating that the Maltese Government had applied for the application of Part II of the Medical Act to Malta. This was caused by a rumour that the same thing was to be done for Italy, but the attitude of that country towards English practitioners there seems to render such action impossible. The Privy Council apparently inclines to apply the Act to Malta, but asks the General Medical Council for information as to the status of the Diplomas of the University of Malta.

And it would seem clear that if reciprocity is to become possible, the question as to the true value of Diplomas and licenses is an essential one. For instance, here in England the General Medical Council demands the right to control the curriculum and the efficiency of pass examinations, and it is difficult to see how it can ask our Students to so submit themselves if there is a possibility of other nationalities not bringing equal value should free trade in qualified practice be allowed. In other countries there is an equally strong

national feeling. In France, for example, a foreigner must pass the State examinations before he can practice. And in America where the various States regulate practice by Examining Boards, even the possession of a home-grown diploma is not alone sufficient.

There has recently been an accentuation of the complaints by American dental diplomates of their non-recognition in European States, and with the idea of preparing the way for future possibilities, some excellent work has been done in showing

that are good diplomas and what bad. But having prevented the claims of the latter, the question will then arise whether true reciprocity will be granted to European dentists to practice in the States if they wish to. We imagine that the views held on that side may lead to the belief that such a desire may never be realized and that no European would be bold enough to expect to carry coals to Newcastle with success. But if a true reciprocity be in contemplation the dental diplomas on both sides must be put into the scales. In the present number of the *Cosmos* is an interesting communication from the United States Consul at Munich, which shows that a gallant attack is being made in Germany on behalf of the American Dental Graduate. In Germany it would seem that some of the graduates have been or are being prosecuted for what is termed there the "unlawful" use of their honestly acquired titles of D.D.S. The Consul says that his task has been a peculiarly difficult and delicate one, as there is in the first place, even among educated and intelligent Germans a misconception of the character of American Universities, and especially the schools of dentistry. Another difficulty lies in the fact that the German Universities stimulated by the reputation and success of American dental colleges have added dental departments. These two difficulties seem to us to mutually contradict each other; one is due to the poor opinion of the American dental colleges, the other is due to the high conception formed of them. At any rate the Munich University has recently established a dental department which in equipment and the character of its instruction will prove inferior to no other. The Consul says that the

rapidly growing tendency among the peoples of the German Empire to bar out as far as possible all foreign competition may force the governments of the various States to a more determined warfare in behalf of the dentists educated in the schools of Germany only, and it appears to us that if he desires to obtain recognition, he must be prepared to offer a real reciprocity. Surely our American cousins need not fear to offer this.

DENTAL HOSPITAL OF LONDON.—The annual general meeting of the governors of the hospital was held on March 28th, and the reports presented to that meeting contain some interesting information as to the increase of the work done. The total number of cases treated in 1874 was under 20,000 ; in 1900 it was over 69,000. The number of stoppings has increased from 3,500 to 16,000, of which nearly 4,000 were gold stoppings. Another interesting point is that in 1874 only about one-sixth of the 12,000 extractions were done under anæsthetics, whereas in 1900 more than half of the 43,000 extractions were done under anæsthetics. The Committee of Management in their annual report placed on record their appreciation of the services rendered by the dental and anæsthetic staff of the hospital, not only to the patients, but in superintending the equipment of the new building. Acknowledgment was also made of the zeal and efficiency with which Mr. Pink has fulfilled his duties as Secretary.

THE MEDICAL REGULATION OF MATRIMONY.—The Indiana Senate has passed a Bill for the physical examination of all persons contemplating matrimony. The board to be appointed by the Governor is composed of two physicians, two mothers and one attorney.

TEETH AS RELICS.—Teeth have been worshipped, and in fact are still venerated as relics in some religious shrines. Buddha's tooth is preserved in a temple in India; the Cingalese worshipped the tooth of a monkey, while an elephant's tooth and a shark's tooth served a similar purpose among the peoples of the Malabar and Tonga islands respectively. Teeth have often been and still are worn as amulets. Sharks' teeth are valued in this way in Samoa.

ADVERTISING BY DENTISTS.—The report of the inquiry by the Dental Committee of the General Medical Council, shows that the Medical Defence Union is disposed to force the hand of the Council in regard to advertising. We again protest against the easy manner in which the Council authorities summon the supposed offenders to London, and put them to expense which, in some cases at any rate, is entirely uncalled for. In this connection we are indebted to a provincial correspondent for a reprint copy of the *Leeds Mercury* of March 7, 1801, which contains the following advertisement:—

Mr. LESEC,
Surgeon-dentist,
(Late from York)

Respectfully informs his Friends and the Public in general, That, by the Request of several of the First Families of this County, he is induced to make LONDON the Place of his residence; where he has taken a House, No. 12 Hanover Street, Hanover Square.

✍ Mr. Lesec intends to visit Yorkshire once a year, which will be in the Month of August.

N.B.—His DENTIFRICE and TOOTH-BRUSHES are sold as usual, by Mr. Binns, Bookseller, Bottom of Briggate, and Mr. Tuke, Boar Lane, Leeds.

P.S.—It being insinuated that Mr. Lesec has recommended a Person as Dentist, to succeed him during his absence from York, begs Leave to say that he has no Knowledge of any Person sufficiently qualified for such Recommendation.

This goes to show that advertising by dentists is of somewhat ancient date, and, therefore, the action of the General Medical Council is an interference with an established custom that was not contemplated by the framers of the Dentists Act.

DENTIST TO BOARDED-OUT CHILDREN.—The School Management Committee of the London School Board reported as follows :—

The Committee have had under consideration the question of the care of the teeth of the children who are boarded-out by the Board. They understand that Mr. Keen, the dentist to the "Shaftesbury" Training Ship and Gordon House Industrial School, is willing to undertake this work for £50 per annum ; the children at Balham, Camberwell, Homerton, and "Hugh Middleton" to be visited at least once a quarter, and oftener if required, those at Battersea and Notting Hill to be brought to him at the same regular intervals. Mr. Keen will provide all instruments and other materials for ordinary surgical work, not including mechanical contrivances for regulating the teeth, or gas for extractions. The Committee recommend that the terms proposed by Mr. Keen should be accepted ; and, subject to the consent of the Industrial Schools Committee, that he might have the use of the dental machine at Gordon House, on the understanding that it should be conveyed from place to place at Mr. Keen's risk and cost.

The recommendation was adopted.

DENTIST FOR COTTAGE HOMES.—The Guardians of the Blackburn Union will at their meeting on Saturday, the 13th April, 1901, proceed to the appointment of a duly qualified Dentist for the children in the Cottage Homes. Salary £10

per annum (subject to the deductions under the Superannuation Act, 1896). The officer appointed will be required to pay at least one visit every fortnight.

THE LIVERPOOL DENTAL HOSPITAL. — In the official announcement of the opening on the 1st of May, of the summer session of the Medical Faculty of University College, of which Dr. A. M. Paterson is Dean, stress is laid upon the incorporation of the Liverpool Dental Hospital with the school in the college which is devoted to this particular work. No institution in the country, it is said, is better equipped with every modern appliance than the Dental Hospital in Mount Pleasant.

REMOVING GUM TISSUE. — Gum tissue is easily got rid of if the following methods are observed. After a thorough cutting away of the gum with lancet, pack the cavity for one or two days with cotton saturated with sandarac varnish. Insert for the next treatment a gutta-percha filling, forcing it up into the gum, and entirely filling the space between the two teeth, and leave for one or two weeks, when the gum will have returned to its normal condition, and will be far enough beyond the cervical margin to allow the placing of the rubber dam, and a slow and painless temporary separation will have been produced.

TO DEADEN THE Mallet Blow. — A rubber hood made of several layers of dam is tied on the plugger. This seems to hasten the recoil, permitting a more rapid use of the mallet and at the same time, by deadening the sound so disagreeable to many patients, apparently softening the blow. — G. H. Claude, in *Cosmos*.

OBITUARY.

SIR EDWIN SAUNDERS, F.R.C.S., F.G.S.

It will be with a sense of deep loss that the profession will receive the announcement of the death of Sir Edwin Saunders, who died at his residence, "Fairlawn," Wimbledon Common, early on the morning of March 15th. Sir Edwin, who had been ailing for some little time, had attained the ripe age of eighty-seven years, and was the *doyen* of the profession in this country just as Mons. Lecaudey, whose decease we noticed last month, was the "grand old man" of dentistry in France. Another analogy exists in that Sir Edwin Saunders was to the London School of Dental Surgery what M. Lecaudey was to the Ecole Dentaire of Paris. What the past and present Dental Hospitals in Leicester Square owe to the late Sir Edwin is not easily computed, and it is no secret that his generous and timely aid in obtaining the freehold of the old Hospital greatly assisted the management in their gigantic task, the consummation of which was recently noticed in our columns.

Sir Edwin had seen and had assisted at the growth of most of what is known as modern dentistry. He was one of the first to employ anæsthetics. It was at his house that the first steps were taken in 1857 to unite together those practising dental surgery by the formation of the Odontological Society. He was the first treasurer of the Society and subsequently filled the office of councillor, vice-president, and president in 1864 and 1879. He was until quite recently one of the trustees and on his resigning that office he was unanimously elected an honorary member. Sir Edwin Saunders was amongst the earliest to memorialise the Royal College of Surgeons of England with a view to obtaining recognition by examination and diploma for dental surgeons. He, with others, in 1857, established the Dental Hospital of London and Medical School in Soho-square and retained for many years a keen interest in that institution. It was owing to his self-sacrifice and liberality that the building in Leicester Square was equipped and handed over free from debt. At

the meeting of the International Congress in London, 1886 he occupied the chair of the dental section. He took an active part in the British Dental Association in the early years of its existence and at the meeting in 1886 was the president. For over 15 years Sir Edwin Saunders held the appointment of dental surgeon to the late Queen, and in 1883 received the honour of knighthood. All members of the profession will unite in deep sympathy with Lady Saunders in her sad bereavement.

Abstracts of British & Foreign Journals.

TREATMENT OF CHRONIC ABSCESS BY AMPUTATION OF ROOT.

By EDMUND BUCKERIDGE.

In writing on this question it is my intention rather to outline the history of a case which came under my notice than to make a dissertation on the subject. This case presented itself in the clinic last spring, where the patient had had abscess after abscess upon the left upper central incisor for a period extending over more than three years.

The tooth had been devitalized and a gold shell crown placed upon it, and the canal filled with cement, a portion of which protruding through the apical foramen had been the cause of the abscess. In order to treat the abscess the crown had been removed, and when I first saw the patient a cement crown was taking its place.

The patient wished to have a Richmond crown in place of this unsightly mass of cement, and, in view of inserting one there, a member of last year's graduating class had been trying to cure the abscess by the customary methods, but was unable to effect a permanent cure owing to the presence

of the original cause and the fact that a large portion of the root had become denuded of pericementum, and was therefore nothing but a foreign body in the alveolus and a constant source of irritation. It thus became necessary to remove this body before there could be any lasting success. Two courses now presented themselves,—extraction of the tooth *in toto*, or amputation of the denuded portion of root. The latter was decided upon, as the patient was unwilling to lose so prominent a tooth as an incisor.

The canal was filled with Fellowship amalgam, and an injection of a two per cent. solution of cocain made in the region immediately surrounding the root. Then, with a bayonet-shaped drill, I cut straight through until I could feel the diminished resistance that the instrument had pierced the root. By lateral pressure I completely severed the apical portion, which was then extracted with some difficulty with a pair of foil carriers.

The operation was accompanied by a fair amount of bleeding, and there was considerable pain. The wound was thoroughly rinsed out with phenol sodique, and packed with iodoform gauze. The greatest care was taken to avoid infection by unclean instruments, all those in use in the operation being perfectly new and kept, when not in actual use, in a forty per cent. solution of formaldehyde.

For a week the patient came in every day to have the wound washed and repacked with gauze. At the end of that time all signs of suppuration had ceased, though there was a feeling of tightness or fulness in the tissue directly above, and some soreness in the wound itself. The packing was then discontinued, the wound left patulous, and the patient instructed to syringe it daily with a one-half per cent. solution of formalin.

The tooth was very loose in its socket for nearly three weeks, after which it slowly tightened as new tissue filled up the wound.

The patient having to leave the city a month after the operation, although the tooth was still rather loose, a Richmond crown was made and placed upon it. There was then a slight depression in the gum marking the point of excavation, but all unpleasant feelings had passed off. No further indication of renewal of an abscessed condition has appeared up to the present, while the tooth is now firmly fixed in its socket.—*Penn. Dental Journal*.

ADVERTISING BY DENTISTS.

It will be in the recollection of our readers that the General Medical Council, at its spring session last year, erased the names of two dentists from the register because they had advertised in such a way as to amount to, in the Council's opinion, infamous conduct in a professional respect. At the same time the Council adopted the following resolution:—

That the attention of the Council having been called to the practice of advertising by certain dentists, it is hereby resolved: "That the issue of advertisements *of an objectionable character*, and especially of such as contain either claims of superiority over other practitioners or depreciation of them, may easily be carried so far as to constitute infamous or disgraceful conduct in a professional respect."

This resolution had previously been passed by the Council, but it transpired during the hearing of the two penal cases that its existence was not well known to dentists, and it was therefore considered desirable that a copy of the resolution should be sent to each person on the dentists' register. The discussion on the motion also indicated that a section of the Council was somewhat remorseful of the strong line which had been taken in regard to advertising, especially the victims sacrificed on that occasion; for the pro-dental purity party desired to have the words "of an objectionable character" struck out of the resolution, and a motion to that effect was defeated. The President of the Council (Sir William Turner, K.C.B.) then stated that when the resolution was passed six years before the general opinion was that the Council could not forbid all forms of advertising; and Dr. MacAlister protested against instituting "a new crime," as he considered a resolution dealing with all advertising to be. The division of the Council on this occasion was substantially a declaration that advertising by dentists may be unobjectionable, and therefore not infamous or disgraceful conduct in a professional respect. We may go further and say that the tone of the discussion sufficiently indicated that the majority of the Council was opposed to indiscriminate interference with dentists in this matter. A little advertising has always been the custom in that calling, and as long as it is kept

within reasonable limits, and is done according to the dictates of good taste it is not, and cannot be, regarded as the infamous or disgraceful conduct to which the Act refers. The Dental Committee of the General Medical Council does not appear to be of that way of thinking, however, and has recently taken action in cases which appear to us to be even less objectionable than those which we reported in May, 1900. The committee appears to be determined to stop *all* advertising by dentists, although that is precisely the thing which the Council resolved not to do. Such procedure is intolerable. It puts the *pro tem.* incriminated persons to great annoyance and expense, and there is for them practically no redress. Their accusers have the advantage over them of getting the ear of the Dental Committee first, and to such good effect that the first the accused hear of the matter is a request to show cause why they should not be charged with infamous or disgraceful conduct in a professional respect. We submit that the Council's resolution of May last was designed to discourage such proceedings on the part of the Dental Committee, and we urge on behalf of registered dentists who advertise that it is the duty of the Council to stay further proceedings until it is clearly indicated what is and what is not objectionable advertising. The Dental Committee appears to have a standard to go by, which should be made known. In cases now *sub judice* the advertisements neither claim superiority over or depreciate other practitioners, yet the dentists have been summoned in so peremptory a manner to appear before the Dental Committee as to suggest that there is no ground for discussing the matter, but that they must either apologize and stop advertising or submit to having their names removed from the register. The Dental Committee is likely to defeat the object it has in view—viz., to reduce the practice of dentistry to a strictly professional pursuit in which trade methods are not recognised, because there are many who feel as we do that the General Medical Council has slender legal ground, if any, for declaring advertising to be "infamous conduct," and many of those will not submit to dictation in the exercise of their legal rights. Of the two dentists whose names were removed last May one has since formed his business into a limited liability company, so that he now has the power to continue to use dental titles and advertisements in defiance of the Council. The other (Mr. Oglesby, of Barnsley), after submitting to the Council's ruling for six months, and stopping his advertisements entirely,

respectfully approached the Council with the view to having his name restored under the no-advertising policy. He had scant courtesy from the Council, and now, we observe, he has given up hope of restoration, and has commenced to advertise again in a more effective manner than he did before, and with prices, but without titles. We shall have much more of this sort of thing if the General Medical Council permits its Dental Committee and outside case-making bodies to exercise their antipathy to all who do not carry on dental business in the Harley Street fashion. We hold that the Council's powers in the matter are exceedingly narrow, and that there is at present a tendency to exceed these powers, which registered dentists (amongst whom are many chemists and druggists) should not allow to go on without challenge.—*Chemist and Druggist*.

In the *Chemist and Druggist* of March 2 we wrote in reference to the action taken that week by the Dental Committee of the General Medical Council in respect to advertising by dentists. We are now able to supplement that article with an account of the proceedings before the committee, which met at the offices of the General Medical Council in Oxford Street, London,

On February 26 the Dental Committee sat to hear complaints against those dentists who had received notice and were informed that they might be represented by counsel. Five were so represented, and one appeared in person. The first case was a complaint against a dentist for having an unqualified assistant, and it transpired that he was charged with allowing his wife to perform dental operations—viz., two extractions and filling two teeth. The defence was that the teeth were loose stumps lying on the gum, which were simply pushed off: and the two teeth alleged to have been filled were only dressed to relieve the pain until the husband could attend to them.

In the next case the dentist was charged with advertising certain letters to his name implying a qualification he did not possess—viz., “R.D.S., R.C.S., Eng.” The Royal College of Surgeons were the complainants in this case, and it was on all fours with the warning that has been given in the *C. & D.* Then followed the advertising charges against three dentists from one town, who were cited to appear to answer a complaint that they did, on certain dates mentioned, exhibit certain showcases and insert advertisements of an objectionable character in certain magazines, &c., contrary to the honourable practice of their profession, &c. Dr. H. Woods, the Secretary of the Medical Defence Union, had lodged information, and appeared to press his case. He commenced to address the committee, but after a short time was stopped by the Chairman and asked to produce his evidence. Dr. Woods said that he had no witness or evidence except the copies of the advertisements, and these were not in his possession, as he had sent them to the Council’s office. There seemed a deadlock, but it looked as if the cases were about to collapse; but, after a consultation by the committee and their legal adviser, the bundle of advertisements was produced and given to Dr. Woods, who was then asked to read and point out in the advertisements the particular things that he claimed to be of an objectionable nature. Thereupon Dr. Woods said he did not claim that the advertisements were objectionable in themselves, or that one was more objectionable than another. He was there to press the view that all advertisements, of any kind whatever, were “infamous and disgraceful conduct in a professional respect.” The Chairman upon this stopped Dr. Woods with the remark that he thought he could not have seen the circular sent to every dentist regarding the resolution adopted by the Council in 1896 upon dentists advertising, which was as follows:—

That the attention of the Council having been called to the practice of advertising by certain dentists, it is hereby resolved: “That the issue of advertisements of an objectionable character, and especially of such as contain either claims of superiority over other practitioners or depreciation of them, may easily be carried so far as to constitute infamous or disgraceful conduct in a professional respect.”

Dr. Wood admitted that he had seen that, but notwithstanding he brought these cases before the committee and pressed them to go further than they did last year, and to say that not only objectionable advertisements but advertisements

of any kind is infamous and disgraceful conduct, and to erase the names of those so advertising from the register. There followed a long discussion between the parties and the committee, the dentists and their legal advisers pointing out the harmless and unobjectionable nature of the advertisements, and the fact that they thought they were only doing what they were entitled to, bearing in mind the circular of the Council which implied that they could advertise within certain lines, etc., but they had had withdrawn the advertisements complained of. The two legal gentlemen then addressed the committee, as did the dentist not legally represented, and the Chairman concluded the matter by stating that the committee only inquired into the facts of each case, and they should report the result of the inquiry to the Council. The dentists complained of would receive ample notice to appear when the Council met in May or June.—*Chemist and Druggist*.

GERMAN DENTAL MISCELLANY.

Translated for the "Digest" by Dr. B. J. CIGRAND, Chicago.

Frequency of Dental Caries, by Dr. Berger. According to statistics the frequency of dental caries in children is decidedly on the increase. The investigations of Roemer disclose the fact that dental caries advances with civilization and diet; the latter being the prime cause. In Switzerland in 1891 the results of close investigation gave the alarming information that 94.2 per cent. of all children between the ages of seven and fourteen evidenced dental caries. A like research into conditions of Sweden showed that 97.27 per cent. were afflicted. England gave a more favourable table; in this country the percentage was 87.3. The city of Hamburg, Germany, showed 98.5; Wuerzburg, 84.6; Kaiserlauten 99.5; Freiburg, 99; in Schleswig Holstein, 95; Finland, 90.

A careful study of these facts evolved the theory that

climate, diet and civilization were not the only conditions which must be taken into account, as soil was after all the underlying circumstance which contributed most essentially to the problem of dental caries. The famous investigator, Rose, gave this important deduction and his theory of dental caries has brought him many adherents. He makes the claim that countries where the soil contains little lime have a population with weak teeth and dental disease: while in countries like England, having soil with an abundance of lime and chalk, the teeth are of better quality. He observed further, that where the people bake their bread soft and doughy the teeth are badly decayed; but where the bread is baked hard and contains the bran of the wheat the teeth are in a much better condition. He argues that the bran of the wheat contains the very element which strengthens the tooth structure during the period of tooth evolution.

Dr. Berger recommends that the rising generation be informed of the virtue of the whole wheat bread, and that diligent care of the teeth is necessary if the coming people hope to see the age of sixty, which is fully one-third less than it ought to be. He also calls attention to the fact that dental powders and pastes should contain a liberal amount of alkaline ingredients, and that present time mouth and dental preparations do not receive sufficient attention from the professions.

German Army Dental Surgery.—Dr. Lippold was recently appointed by the Emperor chief of the field dentists of the troops in China. He leaves for that country immediately, and will be prepared to give dental service not only of a surgical nature, but on the prosthetic as well as operative side. His entire equipment will be shipped and he will have the authority to call for assistants if he requires them. He will make his headquarters for the present at the general's home.

Drs. S. Reinhold and L. Meyer were appointed as royal dental surgeons to the Shah of Persia. They were decorated with the badge of the order of Lions, and appropriate medals were struck in honour of their appointment.

Dental Society of Scientific Culture.—A society with this name was recently organised at Dresden, and has for its specific purpose the following objects: 1. Study of the

causation of dental caries. 2. Financial support to such of our profession as are doing original work in solving the problem of dental caries. 3. Teach the general public care of the teeth. 4. Support and influence of higher dental education, with special reference to college education. Among its members are counted the most learned and scientific of Germany, and the good which this association of eminent men can accomplish is clear to all who understand the method of German government aid.—*Vierteljahrschrift Zahnheilkunde*, No. 4, 1900.

Mummification Paste.—Of late considerable attention is being given to pastes which will completely mummify the dental pulp. Most satisfactory results can be had from the following: Calomel and zinc oxide equal parts, and sufficient amount of formaldehyde to make a paste. The formaldehyde readily evaporates and so it will be necessary to occasionally add more of it to the mixture.

Removing Broaches.—In case you break a barbed broach off in the canal, you will find it a good method of removal to saturate the cavity with a 25 per cent. solution of pyrozone. In a difficult case saturate a pledget of cotton with the pyrozone and introduce it into the cavity, sealing same with gutta percha or sandarac, and leave it in the tooth for upwards of three or four days. When the patient returns take out treatment, and the broken broach is readily removed, since the pyrozone has completely rusted and almost eaten it up.

Dental Statistics.—It will be of interest to recent graduates to learn the number of dentists practising in thickly populated countries. These figures are taken from government reports. Sweden, with a population of 5,500,000, about the same as Pennsylvania, has 300 dentists, and of this small number but eight have the degree of D.D.S. Pennsylvania has 2,285 dentists. Norway, with a population of 1,700,000, about the same as Wisconsin, has 180 dentists, eleven of whom have the degree of D.D.S. Wisconsin has 795 dentists. Denmark, with a population of 2,500,000, about the same as Michigan, has 200 dentists, six of whom are D.D.S.'s. Michigan has 910 dentists.—*Zahntechnische Reform*, Nos. 17, 18, 1900.

FETID BREATH.

Prof. B. Frankel, (*Archiv fur Laryngol*), offers some remarks upon the subject of disagreeable odours arising from the mouth and other parts of the respiratory tract. In order to determine definitely whether the odour arises from the nose or the mouth, a piece of cardboard of suitable dimensions is held against the upper lip beneath the nose, and the patient, with the mouth closed, blows first through one nostril and then the other. The observer sits with his nose at the opposite edge of the cardboard, and may in this way determine whether one or both nostrils afford the source of the odour. Then with the nostrils closed the patient is allowed to breathe through the mouth. If one has determined that the odour arises from the mouth, it is necessary to further decide whether any particular portion of the mouth or pharynx is responsible for the odour. To accomplish this Frankel collects the secretion on a cotton applicator from each suspected spot, and submits it to his own olfactory judgment.

Not rarely carious teeth are responsible for the fœtor. In such cases the dentists can usually remove the odour. In other and not rare instances the various tonsils with retention of secretions in their follicles or small caseous abscesses in the tonsillar tissue form the source of the odour. For the relief of these cases the author suggests splitting the tonsils, dilating the openings of the follicles, the local application of Lugol's solution, or amputation of the tonsils, as the case may require, in order to remove the source of the odour. He lays special stress upon the plica tonsillaris and the recessus tonsillaris as localities in which frequently the decomposition of secretion has taken place. By splitting up the folds with the scissors under cocaine anæsthesia success is attained in the treatment of such cases. If it is possible in this way to locate the source of the odour, the treatment is easily carried out and generally successful, but in other cases where the secretion of the entire mucous membrane has undergone fetid decomposition, or where the disagreeable odour arises from the lower respiratory tract or from the esophagus, the prospect of treatment is not so good. One must always recommend in such cases that the mouth and throat be thoroughly and frequently washed out with some bactericidal and deodorizing medium — *Digest*.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

(Continued from page 334.)

The PRESIDENT said that the subject was one in which they were all interested, and there must be many present who were anxious to speak upon it.

Mr. WYNNE ROUW said that it appeared to him that they had to define what superior protrusion really was. Could they define it? He did not think that anybody could. They heard that superior protrusion was associated with particular appearances which did not always exist. He had in his pocket models which he should like to pass round, which some present would probably say showed superior protrusion, but of which he should say emphatically that they did not, for a reason which would be apparent. If they examined the models they would find that, although certain points were present which were generally associated with superior protrusion, still others were missing. In the case represented by the models, he did not mind owning that he addressed himself to the treatment with some amount of misgiving, and he put himself to the test by treating the case by a method which he had lately adopted, and which he hoped would bring success eventually. He referred to the operation known as "jumping the bite." The patient was still in his care, and he believed that what he was aiming at would eventually be accomplished. In a case treated by his friend Dr. Davenport, it was noticed that the mandible gradually slipped forward as the upper jaw was expanded, clearly proving that here at least the origin of the trouble was to be discovered in a bite "locked out" of its true position. Mr. Constant's theory appeared to him to be that the deformity was occasioned by the forward thrust of the lower front teeth. He believed that he was right in concluding that this was Mr. Constant's view. What he (Mr. Rouw) had attempted to prove, was that although that might be commonly the case, still it was not always so, and that in quite a large number of

these cases there were other causes at work, of which they were as yet ignorant.

Mr. RUSHTON said that he thought that Mr. Constant replied to Mr. Rouw in his paper. At least he should have thought so, except that in a passage later on it seemed that Mr. Constant contradicted himself. He said, "About the time that I arrived at this conclusion I somewhere heard it suggested that superior protrusion was produced by the growth of the lower incisors. Careful observation of the cases then under my care convinced me that this assumption was inaccurate." He took it that Mr. Constant said that the upgrowth of the lower incisors, and their impinging against the upper incisors, did not cause superior protrusion. But then, later on, when he was speaking about the axis of motion, and how it suddenly shifted from its normal position, the condyles becoming the axis of motion, he said, "The result of this shifting of the axis of motion would be that the thrust or direction of impact of the lower teeth would be materially altered at the very moment that it is taking effect. It is thus seen that it is only necessary to find evidence of a lack of development of the molar region of the mandible, to be able to demonstrate a constantly acting protrusive force upon the upper teeth." He should very much like to hear Mr. Constant explain or reconcile these two passages. It seemed to him that, as Mr. Rouw said, they were very much mixed as to what they meant by superior protrusion. He thought that they seemed to have jumbled together what he might call intrinsic and extrinsic causes, and the combination of both. What one might call an intrinsic cause was nasal obstruction, producing mouth breathing with its various sequelæ. Among the extrinsic causes were such things as thumb-sucking and lip-biting, and there was also the combination of the two together. He did not think they could discuss the matter properly until they had a proper classification of the causes which produced superior protrusion. Mr. Constant mentioned various theories propounded by various speakers, and it seemed to him (Mr. Rushton) that most of the suggestions had a grain of truth in them, and some rather more than a grain. The difference between the normal mouth, and the mouth in the cases which they were discussing was very great. As to the normal mouth, he observed that Mr. Constant did not contradict him, but he rather wrote as though he was not convinced. In the normal mouth, when the teeth were closed the incisors did not

actually touch. Furthermore, the lower incisors did not impinge against the palate. In cases of superior protrusion caused by mouth-breathing, they found either one or the other. When the normal mouth was closed, the tongue filled the oral cavity comfortably, exercising no pressure in any one direction. In the case of the young mouth-breather, the mouth was open, and the depressors of the lower jaw were continually acting on the developing mandible, as had been pointed out by Mr. Tomes. Therefore instead of the jaw having its proper slightly obtuse angle, it had a greatly enlarged, or enhanced obtuse angle. Sometimes it was almost in a straight line. The consequence of this was that the molars met too soon. He saw an exaggerated case of this kind at the National Dental Hospital the other day, in a child of about ten years old. It was not an exaggeration to say that the jaw looked in an absolutely straight line, and in spite of that, the upper and lower incisors did not meet. It was an open bite, even though some of the six-year molars were carious and level with the gum. This was an extremely exaggerated condition, but when the condition was not very exaggerated they saw that the lower teeth increased in length, having nothing to stop them, and he maintained that the increase in length and protrusion was caused by the position of the tongue. In these cases the obstruction to breathing was caused by enlarged tonsils, and the general blocking up of the fauces. They had noticed that when a dog wanted to breathe very rapidly, he put out his tongue and depressed it, and the tongue was hollowed. It was very much the same in the case of people who could not breathe at all through the nose, and could only breathe comfortably by the mouth. When they looked into the throats of people of this kind, they wondered how they could breathe at all, for the tonsils were so enlarged. He maintained that in order to breathe more freely, the child depressed its tongue, which was consequently elongated and consequently pressed against the lower incisors, which again, in their turn, impinged against the upper incisors during mastication. In such cases a mouth-breathing child was not a lip-biter. If a person held his nose and bit his lips he would find it exceedingly difficult to breathe. When they came to the maxillæ they found that, instead of the tongue filling up the palatal arch, as in the normal mouth, the tongue lay in its bed in the lower jaw, and there was nothing to counteract any pressure of the facial muscles on the upper jaw, and as the air passages also were not used, they

got those causes which retarded the development of the maxillæ. He knew that Mr. Mayo Collier received a good deal of criticism when he read a paper on this subject at the Society, and perhaps he tried to prove too much, but he (Mr. Rushton) thought there was a good deal in what Mr. Collier said. He did not think there was any other part of Mr. Constant's paper which he wished to criticise except on page 45. They were usually led to suppose that adenoids came first, and then mouth-breathing, and afterwards superior protrusion, but Mr. Constant said that he had come to the conclusion that the events took place in the inverse order, first superior protrusion, then mouth-breathing, and finally adenoids. He (Mr. Rushton) could quite understand the ordinary theory of first adenoids, and then the other sequelæ, but he confessed that for the life of him he could not see how, if Mr. Constant's definition was correct, superior protrusion came to exist at all.

The PRESIDENT said they had among them a visitor who was well known to many of the members, and he would ask Mr. Arbutnot Lane if he would be good enough to take part in the discussion.

Mr. LANE said that perhaps he might be allowed to read some remarks which he had prepared. He then read the paper published at page 337.

Mr. TURNER said that he thought that, as Mr. Lane had shown, they thought of the subject of superior protrusion far too closely as only a dental subject, and they disregarded other deformities which were really very obvious, all of which were correlated and explained by mouth-breathing and adenoids. The same causes which would explain the other deformities would equally well explain that mouth deformity they were trying to find another cause for. He certainly agreed with Mr. Rushton and Mr. Lane that the mechanical and developmental factors were all that they wanted. In the lower jaw the deformity ran parallel with that of the upper to a certain extent. They found a narrowing of the arch, and consequently some little protrusion, due to the open mouth, especially during the day, when an effort was made to keep it open to get extra air. This resulted in dragging down of the anterior portion of the jaw and a deficient eruption in the molar region, and it seemed to him a rising up of the anterior teeth to find their antagonists. He did not think that mouth-breathing went for much during the night. In the earlier part of the night, at any rate, children who had adenoids

certainly had their mouths closed. He thought that Mr. Lane went very far in calling the superior protrusion congenital. He did not think that one generation or ten generations were likely to transmit it. He believed that the force of nature was sufficient to put aside any peculiarity of that kind which a parent had acquired. Mr. Lane had stated that the nasopharynx was the part in children especially liable to the invasion of bacteria. But adenoids were found in all conditions of life, and in parts of the country where people should be healthy. It was frequently found in the colonies of Australia. A friend of his in America attributed it to climatic influences. He lived on the sea-board, and if he sent his children away into the hills of the interior they got rid of their adenoids, but when they came back to the sea-board they got another crop. However that might be, he thought that obstructed respiration, mixed with certain other points of development induced by congenital influences, solved the difficulty.

Mr. BALDWIN said that in the original discussion on the subject, he was astonished to find that he and Mr. R. H. Woodhouse were the only speakers who stated their belief to be that superior protrusion was caused by mouth-breathing, although that was the cause which was given in Tomes's

Dental Surgery." All the speakers, on the other hand, who had spoken this evening took that view, and he believed them to have spoken in the main truly with regard to the matter. Mr. Lane had said that the upper teeth very often projected considerably beyond the lower front teeth, which was perfectly true. If the lower teeth caused the projection by impinging on the upper, it would be difficult to say why the upper teeth should project in front of, and away from all contact with, the lower, unless the lip got in between, which was not always the case. This would be explained very well if the sides of the jaw had been pressed together by the pressure of the cheeks upon the upper teeth as Tomes suggested, and also if the mouth-breathing had prevented the proper development of the bone of the lower jaw. That the bone of the lower jaw was very often obviously deficient in size when compared with that of the upper, he thought they must all agree. In looking at the bite, and the antagonism of the two rows of teeth, to ascertain what was the relation of the one to the other, it was necessary to notice whether the lower canine bit in front of the upper canine, which was the normal arrangement, and whether the second lower bicuspid

bit in between the two upper. If they found the lower canine behind the upper canine, and the second lower bicuspid behind the second upper bicuspid, it would show there was a distinct disproportion between the upper maxillary and the lower, or that, at any rate, the whole of the lower teeth were distinctly in a more backward position when compared with the upper than they should be. If the protrusion forward were simply due to the pressure of the lower teeth, they would not find the proper articulation interfered with, but the lower canine would still be biting in front of the upper canine, and the relationship in other respects of the lower teeth to the upper maintained, but all pressed forward. The two models which had been sent round by Mr. Rouw showed that the upper front teeth were biting distinctly in front of the lower ones. There was here no pressure on the upper front teeth on the part of the lower ones, and there was no evidence of the lip having been in between.

Mr. CONSTANT, in reply to the discussion, said that he should have been glad that he had brought this subject before the Society if it had no more than elicited Mr. Lane's remarks as to the general conditions associated with these cases. In their own specialty they were very apt to take a too narrow view of the cases which were brought before them. He was rather sorry that Mr. Lane had not entered more definitely into the point which was *the* point in his paper, namely, that superior protrusion was really caused by a loss of correlation between the growth of the condyloid portion of the jaw and the alveolar portion of the jaw in the molar region. He would answer the points which had been raised in their order. Mr. Rouw did not think that the condition of superior protrusion had been defined. He was afraid that he must take exception to that, because, in a paper contributed by Mr. E. Lloyd-Williams a little while ago, one of the best and fullest descriptions of the conditions met with in superior protrusion that he had ever read was given. There were many cases of prominent teeth which were not cases of superior protrusion, but he believed that, if they were guided by the description which was given by Mr. Lloyd-Williams, any contention upon that point would be obviated. Mr. Rushton thought that he (Mr. Constant) had contradicted himself, and one or two other speakers seemed to have got something of the same idea. But his contention never was that the lower front teeth pushed forward the upper front teeth by biting directly upon them; but it was that the lower

front teeth, as a whole, brought forward the whole of the upper row, the contact being more between the bicuspid teeth than the incisor teeth, and protrusion went on until finally the lower lip got behind the upper incisors. Mr. Rushton still seemed to be of opinion that the lower incisor teeth in a normal mouth did not come in contact with the upper incisor teeth. That only showed the necessity there was for an authoritative work on the subject. He thought that most of them would agree that the normal function of the incisor teeth was a cutting function, a function which could be only properly exercised if the lower front teeth when the mouth was shut just touched the back of the upper incisor teeth. In his opinion that was the condition that was found in a normal mouth. Then Mr. Rushton thought that enlarged tonsils would cause the condition, and that it was a very great factor indeed. He (Mr. Constant) thought, from a careful consideration of the mechanical conditions which were found in the mouth, that a tongue thrust forward to give more air space was very much the same as an enlarged tongue, as far as the action on the teeth was concerned. In cases of macroglossia one found usually that the lower incisor teeth were extremely prominent; one found, on the contrary, in cases of superior protrusion that the lower front teeth, if anything, appeared to recede. Therefore he did not think that they could make much of the fact of the tongue being thrust forward as a consequence of adenoid growth, and so on. In most of the cases that had come under his observation he had noticed that the adenoids had appeared frequently after the beginning of the superior protrusion. Mr. Rushton also said that he could not understand, if they did away with the adenoids and so on, how they got superior protrusion. His paper was an attempt to show how it could be brought about. There was one point in which he thought he must disagree with Mr. Lane. Mr. Lane spoke of markedly irregular teeth in the condition of superior protrusion which they were discussing. But, as a rule, in a case of superior protrusion the upper teeth were not markedly irregular in the ordinary sense of irregularity. That is to say, they found a fairly even arch, and the irregularity was more an extension of the arch than any irregularity of the teeth. Mr. Turner thought that Mr. Lane was wrong in describing the condition as congenital. He must disagree with Mr. Turner on that point, because he thought at least 30 per cent. of the cases of superior protrusion had a distinct right to be termed congenital. Almost invariably

the mother would tell them that her mother had the same condition. The cases were at least congenital in the sense of being hereditary, though not congenital, perhaps, in the sense that the condition could be predicted from birth. Mr. Baldwin still seemed to think that mouth-breathing would explain everything, and he would attribute the protrusion of the upper teeth to the contraction of the bone laterally pushing forward the front teeth. To his mind, the insuperable objection to that was that very often in cases of anterior protrusion one did not find a contracted arch. Therefore, he did not think they could attribute it to the squeezing in of the arch on either side. Mr. Baldwin also thought that they should look at the relative condition of the upper and lower bicuspid. He (Mr. Constant) believed that they generally did that. Mr. Lloyd Williams had carefully described the relation. But he thought that the greatest objection to the mouth-breathing theory could best be illustrated by some photographs which he had brought with him. They represented the case of a girl of 12 years of age. He published the case in the *Journal of the British Dental Association* seven or eight years ago. The first photograph showed the condition of the patient when she first came to him. It would be seen that the upper anterior teeth were so protruded that it would be impossible for the girl to close her lips over them. The face was typical of the face that was found in such persons, having the squeezed up eyes and anæmic appearance. In fact the case was a very bad typical case of superior protrusion. The next photograph showed the case four months later, at the completion of the treatment. At the beginning the patient was a marked mouth-breather. The father had been assured by several dentists that he had consulted that, if the condition was put right, it would recur on account of its being hereditary, and that the protrusion was due more to the shape of the mouth than anything else. He was rather anxious to know whether it would recur. He (Mr. Constant) told him that he thought it would not recur. Five years later the father reported that the appearance had not recurred, and that the mouth-breathing had disappeared, and also that the tonsils which had been extremely enlarged were very much smaller, so much so that he had abandoned the idea of having them removed as he had intended. It would seem that if the mouth-breathing was the cause of the condition, the condition ought to have recurred. He therefore thought that the sooner they aban-

done what, as Mr. Baldwin had pointed out, had been an article of faith for some years, the better they would understand the conditions of superior protrusion.

The PRESIDENT thanked the contributors of the various papers. He thought that their thanks were especially due to Mr. Lane for the notes which he had been good enough to prepare and place before the meeting.

The meeting was then adjourned to March 25.

THE TUBERCLE BACILLUS.

The tubercle bacillus is poetically described by Sir J. Crichton Browne as probably "floating on the motes in the sunbeams." To illustrate its minuteness he said, "You have probably heard of the old theological problem of how many angels can stand on the point of a needle. That problem, I believe, has not yet been solved. But I can tell you how many of these demons can stand on that surface. Microscopists comparing the point of a needle with the size of these bacilli have calculated that more than 900 of them could stand together on such a space. "To put it another way," he added, "400,000,000 of them could be comfortably accommodated on a postage-stamp."

CAVITY PREPARATION.

The easiest method, the quickest method, the most successful method. Six rules: 1, obtain the outline form; 2, obtain the resistance form; 3, obtain the retention form; 4, obtain the convenience form; remove any remaining decay; 6, trim enamel margins in relation to enamel prisms; bevel the cavo-surface-angles, and make the toilet of the cavity.—*Dental Cosmos*.

Dental News.

SYDNEY UNIVERSITY DENTAL SCHOOL.

The arrangements for opening the new Dental School at the University in the beginning of Lent term—March 25—have been practically completed by the appointment of the following lecturers in the practical subjects:—

Three lecturers in surgical dentistry: Messrs. R. Fairfax Reading, M.R.C.S., L.R.C.P., L.D.S. Eng.; W. Septimus Hinder, D.D.S., Philadelphia; and N. V. Pockley, D.D.S., Philadelphia.

Three lecturers in mechanical dentistry: Messrs. A. C. Nathan, D.D.S., Philadelphia, D.M.D. Harvard; A. H. MacTaggart, D.D.S. Philadelphia; H. S. du Vernet, D.D.S. Philadelphia.

Practical instructor in mechanical dentistry: Mr. W. A. Gray, of Casino, late of the Paris Dental School.

These appointments have been made by the joint committee of the senate of the University and of the directors of the Sydney Hospital, and are subject to confirmation by those bodies respectively.

The curriculum will extend over a period of three years, and the subjects of study will be the following:—

First Year.—(1) Physics and practical physics; (2) chemistry, introductory, and metals; (3) practical chemistry and metallurgy as applied to dentistry; (4) descriptive anatomy; (5) dissections; (6) anatomy of the teeth; (7) introductory surgical dentistry; (8) introductory mechanical dentistry; (9) hospital and laboratory practice in surgical and mechanical dentistry.

Second Year.—(1) Physiology and practical physiology; (2) dissections; (3) surgery and special dental surgery; (4) surgical dentistry; (5) mechanical dentistry; (6) hospital and laboratory practice in surgical and mechanical dentistry.

Third Year.—(1) Physiology, including special dental physiology and practical physiology; (2) regional anatomy; (3) materia medica and therapeutics; (4) pathology and bacteriology, with special reference to the mouth and teeth;

(5) hospital and laboratory practice in surgical and mechanical dentistry.

The entrance examination to the curriculum is the ordinary matriculation examination of the University, with a proviso that persons who have been bona fide engaged as apprentices to a dental practitioner in New South Wales for a period of not less than twelve months before the 31st December, 1900, or have studied dentistry for a like period before the same date in a hospital with a special dental department, may be admitted to the curriculum without passing the preliminary examination, and provided that they enter upon the University curriculum not later than March, 1902.

The curriculum will lead to the licence in dentistry, L.D.S. The students' time will be occupied in the mornings in attendance upon lectures and courses of practical instruction in the various laboratories of chemistry, physics, anatomy, physiology, etc., at the University, and they will there receive their instruction from the University professors and lecturers. In the afternoons they will be occupied in attending the dental practice at the Sydney Hospital, together with practical instruction in the mechanical laboratory established at that institution.

THE UNIVERSITY OF LONDON.

We understand that recently a special meeting of the Senate was summoned to consider a report from a Committee appointed to confer with His Majesty's Treasury with a view to securing a grant in aid. A substantial grant commencing at a sum of about £10,000 a year is considered to be essential if any real progress is to be made with the organisation and development of the internal side of the University and the adequate provision of higher teaching of academic type in the metropolitan area. The several Boards of Studies of the Faculty of Medicine of the University have, under the new statutes, been appointed by the Senate, and have commenced their sittings, each Board having a chairman and secretary. The Preliminary medical studies comprise the sections of chemistry, physics, and biology. The Intermediate medica

studies are represented by anatomy, physiology, materia medica, and pharmacology, physiological chemistry, organic chemistry, and pathology. Under the Advanced medical studies are medicine, surgery, midwifery, pathology, ophthalmology, laryngology, and otology, mental diseases, medical jurisprudence and hygiene, tropical medicine, military surgery, provincial medicine, and fevers. The subjects of dentistry and of hygiene and public health are separately represented. The various Boards have been asked by the Academic Council to report on the curricula of studies and the schemes for examination which they consider most desirable for the internal students of the University.

G. H. NICKOLDS, LIMITED.

Registered on March 16, by Lindus and Hortin, St. Laurence House, Trump-street, E.C., with a capital of £500 in £1 shares. Object, to take over and carry on at 35, George-street, Croydon, and elsewhere, the business of a dentist, dental practitioner, and dental surgeon in all its branches. No initial public issue. Registered without articles of association. Registered office : 35, George-street, Croydon.

DEATH UNDER CHLOROFORM.

At the Victoria Hotel, Whitley, recently, an inquest was held on the body of Mary Rowley, aged 22, a native of Steinsland, Kirkfield, Lanark, who died suddenly.

Ellen Mulholland, of the Old Post Office Buildings, Whitley, said that the deceased was on a visit to Mr. Mulholland at Whitley, and suffered from toothache. She died on Sunday afternoon when under chloroform for the purpose of having her teeth taken out.

Dr. Young, of Whitley, said he was called to the Old Post Office Buildings, on Sunday afternoon for the purpose of administering chloroform to the deceased, as she was having ten or eleven teeth taken out. In the first place he examined her as to the condition of her heart, and satisfying himself, he administered the chloroform in the presence of the dentist. The teeth were drawn, and subsequently witness noticed that she changed colour, breathed badly, and her pulse became "thready." He immediately sent for extra medical assistance, and meanwhile gave the girl brandy and started with artificial respiration. Two medical men arrived, but the girl died. Dr. Lazenby had attended the girl, but was unable to go to her on Sunday afternoon, and witness went in his stead. Very little chloroform was administered—in fact the dose was an unusually small one. She died from syncope.

The Coroner: You don't think there was any asphyxia in this case.—No, sir. The chloroform was administered carefully, and her proper medical attendant recommended it.—The Coroner: Then you went to perform what he recommended?—Witness: Yes, because he was otherwise engaged. I was asked to go. Further he explained that he had not seen the girl before.

The dentist, Mr. Carswell, of Blyth, said he was asked to go to Whitley on Sunday to extract the girl's teeth, and did so in the presence of Dr. Young. He extracted ten or eleven teeth and roots. She was perfectly willing to be put under chloroform, and got up for the purpose of arranging the pillows as he wanted them.

The Coroner said this was one of the unfortunate cases which they were bound to come across occasionally, and the jury returned a verdict to the effect that she died from syncope, whilst under chloroform which had been properly administered.

SORENESS DURING PULP REMOVAL IN CANALS.—To overcome the soreness sometimes observed when removing the last portions of a pulp in a canal, carbolic acid is often used. Menthol dissolved in chloroform has also been recommended. *Stomatologist.*

DENTAL EXAMINATION PAPER.

These are some of the Questions and Answers at the Ohio State Board of Dental Examiners at a recent examination :—

Question—Name the digestive organs and give the function of each.

Answer—The teeth and glands, etc. The teeth to grind it and the glands to soak it.

Question—What are interglobular spaces ?

Answer—Interglobular spaces are cavities made such by extraction of teeth.

Question—What vital functions continue during sleep ?

Answer—Respiration, cohesion and adhesion and assimilation of food.

Question—Describe a neuron.

Answer—A neuron is a nerve nerves act as transmitters of impressions and carry sensations to the nervous center.

Question—Mention the depressors of the lower jaw. Give their origin and insertion.

Answer—Temporal' facial' Buccinator' masseter Levator-labi superior ali ca nasi with their intersect.

Question—What are the three main divisions of articulation ? To which one does the teeth belong ?

Answer—The temporo maxillary to which the teeth belong unite to form the inferior and superior maxillary bone.

Question—Describe the antrum of Highmore.

Answer—The antrum located in the maxillary bone formed by the ramus of the jaw and extends to the condoyl neck.

Question—What is an astringent ? Mention three vegetable and two mineral astringents.

Answer—An astringent is an element or combination of elements that will build up tissue alcohol' aconite and Iodine Hypersulphate of soda and potassium monoxide.

Question—What is the local action of chloroform when confined to a part so that evaporation is prevented ?

Answer—Chloroform when confined will coagulate the elements of which will become separated.

Question—What is the treatment of cocain poisoning ?

Answer—Bathe the mouth with a germicide and locian of carbolic acid and Iodine.

Question—Mention two heart stimulants that act rapidly and give dose of each.

Answer—Arsenic one eighth of a grain Chloroform two or three drachms.

Of the 72 applicants that have been examined only 27 were found qualified to practise dentistry.—[We are not surprised.]

CONDITIONS OF TENURE

OF THE BOWMAN MACLEOD BURSARY, EDINBURGH DENTAL HOSPITAL.

This Bursary, consisting of one year's course of Hospital Practice at the Edinburgh Dental Hospital, is open to all registered Dental Students entering for the full curriculum for the Licence in Dental Surgery of the Royal College of Surgeons of Edinburgh, and is awarded to that Student who shall pass the First Professional Examination for the said Licence, held nearest the end of the Summer Session, with the highest number of marks, subject to the following conditions :—

1. No Student who has on any former occasion been rejected at the First Professional Examination shall be eligible.

2. No Student who shall have commenced his course of Hospital Practice more than three months previous to the date of the examination shall be eligible.

3. All other registered Dental Students presenting themselves at the First Professional Examination held nearest the end of the Summer Session shall be eligible provided that they, before the examination commences, signify to the Dean in writing their intention to compete for the Bursary.

4. The Administrative Committee shall, at their next Meeting after the result of the examination is known, declare who is the successful candidate, and their decision shall be final.

5. The Student who is awarded the Bursary shall, if he have not already commenced his course of Hospital Practice in the Edinburgh Dental Hospital, commence the same not later than the beginning of the next ensuing Winter Session.

6. If the Student who is awarded the Bursary shall have already paid the fee for the course of Hospital Practice, the proportion of such fee for one year of the course shall forthwith be repaid to him, but, if not already paid, the Student shall, on commencing his course, only pay the difference between the whole fee and the proportion for one year of the course.

7. The Student who is awarded the Bursary shall be presented by the Directors with a Certificate with his name duly inscribed thereon, certifying to his having attained to the distinction of winning the Bursary.

THE DENTISTS' REGISTER.

The rate of increase of the Licentiates in Dental Surgery, and the rate of disappearance of the persons registered as having been in practice prior to 1878 are the chief points of interest in the *Dentists' Register*, 1901, which has just been issued (London: Spottiswoode and Co. 3s. 4d.). The number of licentiates is only increased by 83, although in 1899 (the latest list available) 168 qualifications were conferred, and the accounts show that 149 names were freshly placed upon the *Register* in 1900. From this we may infer that the holders of the licence are somewhat remiss in registering; and if we take the number of names which must have disappeared as all due to death—an assumption open to fallacy—the death-rate would have been about 4 per cent. The licentiates now constitute 40.8 per cent. of the total names on the *Dentists' Register*. The number of those registered as having been in practice prior to 1878 now stands at 2,623, which shows that 230 names have disappeared in the past year; taking these, also, as all dead, the mortality would have been over 10 per cent., a not unreasonable percentage, seeing that all are, or should be, over 44. Although the numbers added fall short of those which year by year disappear, it must not be assumed that there is any prospect of a dearth of qualified dental practitioners, for it is notorious that a very large number of those registered as in practice before 1878 had very small claim to be so regarded.—*British Medical Journal*.

THE MEDICAL REGISTER, 1901.

We are glad to know that the *Medical Register* for 1901 (London: Spottiswoode and Co., price 6s.) has been issued somewhat earlier this year than in recent years. We are informed that the Registrar made special efforts to get so forward with the corrections of the work in proof during last year as to allow of the whole of the revised matter being sent to press early in January, and that the long period since then has been occupied in the final printing, binding, and issue. The number of pages has increased from 1,793 in 1900 to 1,841 in 1901, and the number of registered medical practitioners from 35,836 to 36,355. The number of new names entered during the year 1900 was 1,345, but after deducting names erased on evidence of death and for other causes, the net increase is only 519. The number of names erased on evidence of death was 585, or 25 above the average for the last 25 years, and 26 over that for the last 5 years. Special inquiries have been made under the machinery provided by the Medical Acts, and the Registrar believes that, at least so far as the first half of the volume is concerned, no name of any practitioner deceased prior to the end of 1900 will be found. Letters of inquiry sent out from the Council Office were in 345 cases returned through the Dead Letter Office, and the names of the persons to whom they were addressed have consequently been erased from the *Register*. The total number of removals from all causes was 938, or 205 over the average for the last 5 years. As the same system of revision will, we are informed, be pursued during the present and succeeding years it will behove practitioners to be careful to notify changes of address and to attend to letters of inquiry lest the efficient working of the machinery of revision should result in the regrettable removal from the *Medical Register* of any name that ought to remain on it. The number of annual accessions to the list by registration seems now to have become practically stationary, only one practitioner more than the average for the last five years was registered in 1900. The list of bodies represented on the General Medical Council is increased by the appearance of the University of Birmingham, but of course no graduates from that University have yet been registered. The growth of the Colonial List is not rapid; seven practitioners were registered in it during the past year; no addition to the countries to which Part II of

the Act of 1886 is extended was made during 1900. The total number of names of Indian and Colonial practitioners in the List is now 79, only about half of whom may probably be domiciled in Great Britain for a longer or shorter period, so that the number of Indian and Colonial graduates who have availed themselves of the opportunity of registration in the United Kingdom is very small. Part II of the Act was extended to the Colony of Victoria so far back as 1890; since then it has been extended also to the Colonies of New South Wales, South Australia, and New Zealand, and to India and Ceylon.—*British Medical Journal*.

AUSTRALIAN QUICKSILVER.

An interesting report by the geological surveyor on quicksilver in New South Wales and the methods of extraction has recently been published. Unfortunately, Australia has not been able to add it to her list of profitable mineral products, though in New South Wales, Victoria, Queensland, and New Zealand the principal and only workable ore, the sulphide cinnabar and its varieties, has been found in more or less hopeful quantities (associated in some instances with the native metal), from which small quantities of mercury have been locally retorted. The principal cinnabar deposit in New South Wales is the Yulgilbar, near Lionsville; but very little mercury has been obtained from this mine as yet, and it is a moot point whether the ore can be profitably worked under local conditions.

APPOINTMENT.

Herbert P. Friend, L.D.S. Edin., Hon. Dental Surgeon to the Barnard Castle Dispensary, to be Dental Surgeon to the North Eastern County School, Barnard Castle. April, 1901.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of MARCH, 1901.

Number of Patients attended	1378
Number of Extractions	416
Number of Extractions under Anæsthetics	282
Gold Stoppings	174
Other Stoppings	620
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	435
Gold and Porcelain Crowns	22
Inlays	0
Total	1949

G. H. MEEK, L.D.S.,

B. J. RODWAY, L.D.S., *House Dental Surgeons.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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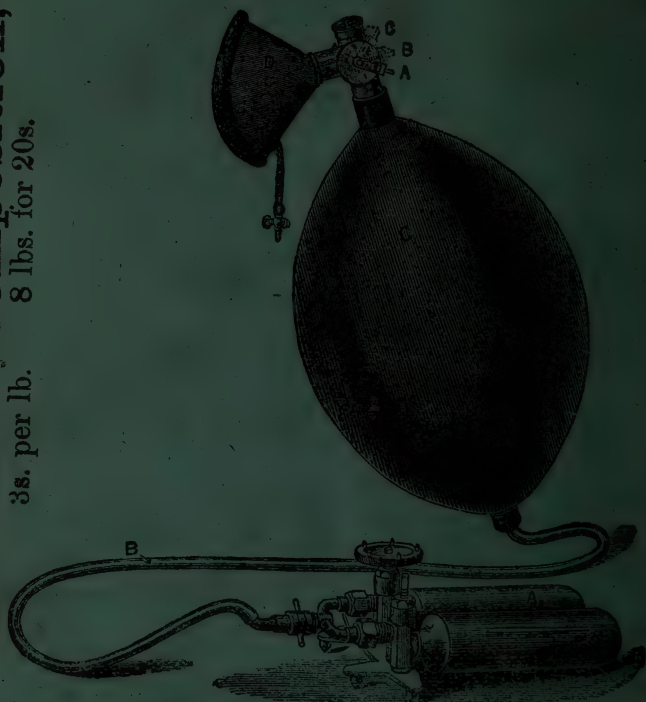
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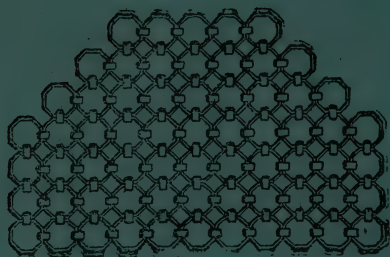
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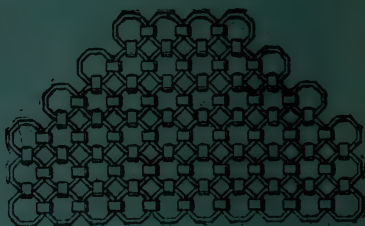
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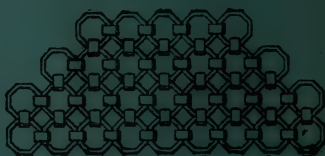
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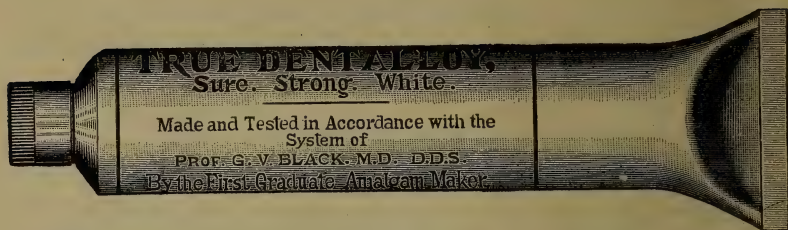
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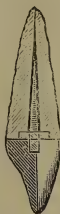
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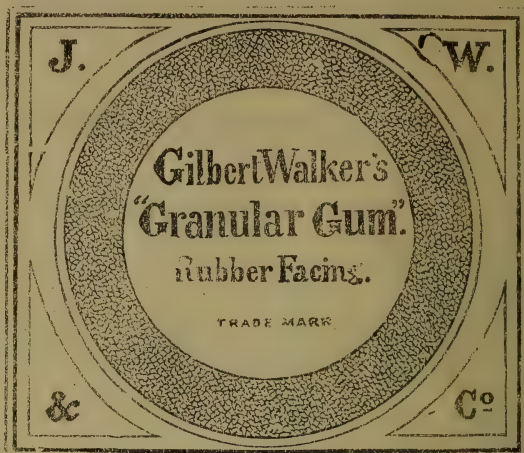
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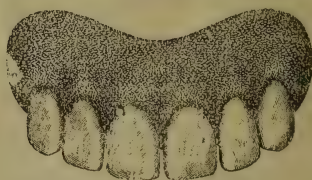
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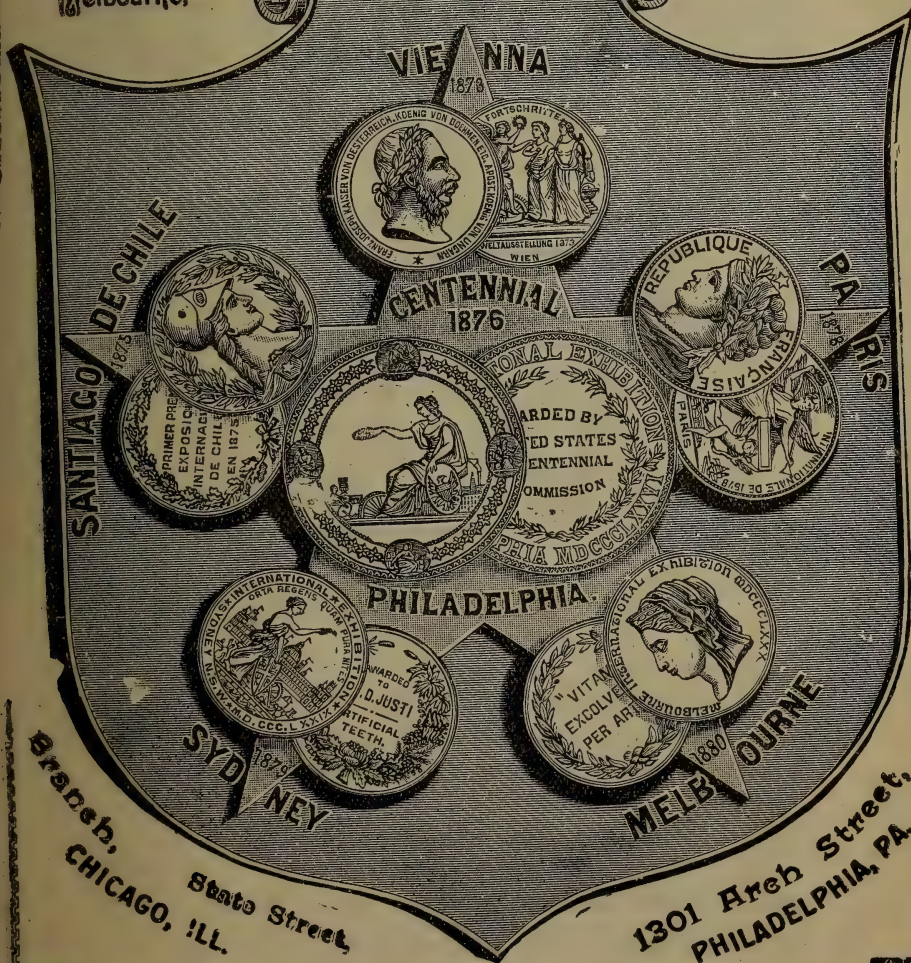
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British Journal of Dental Science

No. 800. LONDON, MAY 15, 1901. VOL. XLIV.

ARREST AND PREVENTION OF CARIES IN TEMPORARY MOLARS BY THE USE OF METALLIC CROWNS.*

By Dr. CLAUDE MARTIN, Lyons, France.

The temporary molars, although their existence is only ephemeral, can be attacked by caries of any degree of intensity, just as can the permanent teeth. There is a general tendency to neglect these lesions on the ground of the temporary character of these molars; the careful treatment to which they ought, in fact, to be submitted being considered useless from the fact that they are fated to disappear.

A similar negligence can be explained by the ignorance of people generally as to the troubles which may follow caries of the temporary molars. It is the duty of the practitioner to point out these dangers and to arrest the ravages of decay by the institution of a rational treatment.

These troubles are numerous and serious. First we have pain, which may be severe to sensitive young children. It makes them unhappy and restless, is the cause of refusal on their part to take the necessary food, and hinders them from sleeping. Then follow troubles of mastication, due to the destruction of these teeth. Under such conditions mastication is not carried on in the proper way, and very soon

* Read before the International Dental Congress at Paris, and published by *The Dental Cosmos*.

alterations in the gastric and intestinal functions take place. The digestive absorption is very much affected precisely at a period when assimilation is intense.

All these disturbances tend to make the child thin, and sometimes they may be the cause of a true arrest of development. This is often a temporary condition; nevertheless it may leave indelible marks upon the organism.

The articulation, too, can be modified, and if later on the eruption of the permanent teeth is irregular or late, it may be the result of deviations not only of the teeth, but also the maxillæ, as I pointed out in a paper on prognathism or the inferior maxilla. These detrimental consequences should be made known because the number of children who present lesions of the temporary teeth is increasing constantly, and because it is inhuman and dangerous to abandon them to their sufferings.

When we come to apply to carious temporary molars the ordinary conservative methods we find numerous difficulties in our way. Our repeated trials often result in complete failure, and we have at last to extract the diseased teeth, an operation which may produce injurious consequences when performed upon teeth of the deciduous set.

Before the eruption, the dental germs can be contaminated through the blood. During the intra-uterine life the foetus suffers the consequences of the diseases of the mother, and the alterations in her blood exercise a detrimental influence. The germs of the enamel appear at about the fifteenth week; hence they can be submitted, as all the other foetal tissues are, to secondary alterations when the mother is attacked during the last six months of pregnancy with dyscrasic or infectious diseases.

The same is the case during the feeding period. If the feeding is defective it is accompanied by chronic gastrointestinal troubles. If nutrition is bad the normal evolution

of the tooth-germs may be interfered with. The difficulties of the weaning period at the moment of the transition in the kind of food may be the cause of the same bad result. In all these cases of affected nutrition,—namely, in intra-uterine life, in the nursing period, in that after weaning,—the dental germs undergo abnormal changes; thus from the beginning their evolution is defective, their tissue deteriorates, and the teeth at the moment of their eruption appear, if not carious, at least with the enamel already strongly disorganized.

In the second case the eruption has been regular, but caries appears later on. The later lesions are often the consequence of infectious diseases which attack man at this period of life; these are enteric fevers, diphtheria, eruptive diseases, etc., whose micro-organisms or toxins have an undoubted influence on the nutrition of the tissues of the teeth and on the development of these organs.

The good results of ordinary methods of filling when applied to carious temporary molars, are often of but short duration. No matter with what care the operation is performed, the caries sometimes becomes of the penetrating character, in spite of two or three fillings successively inserted. These facts find an explanation in the peculiar constitution of the temporary teeth. They are less dense and less resistant; the layer of dentine is thinner, the pulp-chamber is larger, and hence the exposure of the pulp is easier and the infectious germs penetrate with greater facility. Caries in such cases develops more rapidly into the penetrating type, and this notwithstanding that the filling has been applied upon healthy tissue.

In consequence of the failure of the conservative treatment generally followed in dealing with this variety of caries (treatment being undertaken generally at too late a period), I have thought of arresting the development of the carious process and of supplying mechanical reparation for the

destruction of the molars by protecting them with metallic crowns. These crowns are made of gold or platinum. They cover and inclose the entire crown as far as the neck of the tooth, and remain in position in a permanent way until the physiological replacement of the tooth.

The placing of the crowns is with the object of arresting completely the progress of caries. By their exact application to the surface of the tooth they protect the organ from the air and from the corrosive action of the buccal liquids, and this isolation suffices to prevent the evolution of the lesions.

The crowns should be placed as soon as a tooth is threatened with caries ; its application should not be postponed until the lesion is confirmed. At an early period we find the best possible conditions for succeeding with this treatment. But it is not always so, and often the little patients are brought to us with advanced caries. In such cases the cavity should be carefully treated and filled. It is only then that the crowns are placed. Thanks to this procedure, the result of the obturation is rendered permanent ; the decay does not progress further, and the filling is protected from the buccal liquids, as well as from shocks and the abrasion due to the masticatory process.

At the beginning I questioned if it were possible to crown teeth already badly decayed, whose crowns were entirely or partially destroyed. Experience has taught me that it is not only possible, but also very advantageous. In fact, teeth so badly decayed cannot be of any use in mastication ; yet when they are protected with a metallic crown, which rebuilds their form, they furnish to the antagonistic teeth a solid point of support, and give back to the destroyed tooth its mechanical *role*.

I cannot present for the support of this point a great num-

ber of facts. Nevertheless, the following observations I consider to be absolutely demonstrable :

The superior portion of the crown of the left first molar of a girl of five years of age was completely broken down ; around the tooth there was a zone of swollen tissue filled with pus. I disinfected the cavity as well as I could, and opened at different points the swollen zone with the thermo-cautery. After a few days of thorough antiseptic treatment I placed a crown which replaced the lost portion of the tooth, and also covered the rest of the crown as far as its neck. I took the precaution to force the crown well under the gum. In this way I obtained the greatest possible solidity, and isolated the tooth from the influence of the buccal fluids. For a time the openings of the abscess were kept unobstructed by means of the thermo-cautery, and I had the satisfaction of seeing this tooth which seemed in such a damaged condition become firm in its socket. The suppuration disappeared, and the tooth was replaced in due time by its permanent substitute.

In another girl of four years I had to treat the same lesion in the same tooth. I followed the same treatment but the pain persisted for a longer period. The openings which I made with the thermo-cautery in order to open the abscess at last exposed the posterior root of this tooth. This was natural after the alveolus had been destroyed. From that moment the pains ceased, and the tooth became relatively firm, especially when we consider that this was accomplished with only one root. At six years the tooth fell out spontaneously, but until that time the child had been able to masticate perfectly and without experiencing any annoyance.

In a very cachectic boy of five years, who only looked to be three and one-half years, all the molars were attacked with advanced caries. The anterior teeth were badly disorganized ; mastication had been impossible for a long time. The molars could not support any pressure. They were black, and so few

pieces of enamel could be seen at the margins that I doubted if they had ever been protected with enamel. Nevertheless, the dentine, although of a dark colour, did not show any signs of softness, as is the case in dry caries. The central portion of the tooth was largely protected; the pulp was yet very painful, although partly destroyed. I undertook the treatment of the teeth of both maxillæ. After one month I succeeded in extirpating the pulp, and filled the eight cavities with cement. The canals were filled for half their length with *pulpine*, a combination of oil of cloves, zinc oxide, calcium carbonate, and tannin. As no pain was felt after fifteen days, I took the impression and made eight crowns, with the idea of protecting every molar.

Fearing that the amount of tooth-substance that remained would not afford enough support to the crowns, I united every two crowns by means of small gold bars placed laterally, one at the internal portion and the other at the external, and soldered to the crowns at their extremities. With this arrangement I could separate them easily if the case should demand it, and in the meanwhile it gave to the crowns great solidity. The crowns remained in position nearly two years. When the lower left bicuspid began to erupt I separated the crown which covered the temporary tooth by sectioning the uniting bars by means of corundum disks. I had just cut the second bar when the crown fell out, and at its interior the *debris* of the molar could be seen. The second molar remained in position, and was very firm. At very short intervals I intervened in the same way in the right side of the lower and upper jaws, but when I wanted to separate the crowns of the upper left molars they fell out. This was due to the rotating force of the disk. I saw then that the roots of the second molar had undergone complete resorption. The crowns of the upper and lower second right molars fell out

after eight months. The lower one on the left side remained in position for two months longer.

During all the treatment the child was able, owing to these crowns, to nourish himself and to properly masticate his food. And when the molars fell out the first permanent teeth had made their appearance, so that the child could continue to nourish himself properly.

The first effect of this complex intervention was the complete arresting of pain. It allowed the child to ingest solid and even hard food, and to easily nourish himself until the temporary dentition was replaced by the permanent. On the other hand, as I gave to the crowns a convenient height, and as the molars in both jaws were crowned, the bite was opened. This procedure relieved the anterior teeth, which remained separated, and the risk of their fracturing was reduced. Lastly, from an æsthetic point of view, this child, who had had the appearance of an old man, regained a physiognomy appropriate to his age. After several months, through the improvement in the masticatory function, the child developed so well that he became unrecognisable as the same child. Later on the permanent dentition erupted regularly, notwithstanding the traces of erosion that could be seen upon the lower and upper incisors, which were more marked than upon the first permanent molars.

On account of the difficulties of placing crowns in certain nervous and timid children, and in order to simplify the operation, the two temporary molars could be protected by a single crown. This is done so that when the first molar comes out the second will have been protected for a long time, and will have had resisting power up to the moment when it is shed.

That, at least, was the idea that I had in the case of the first patient to whom I applied this treatment. For this child I crowned the temporary molars of the lower jaw with

a single crown; this was done on both sides. After a few months I observed that the first permanent molar was erupting toward the inner side of the jaw, and entirely under the temporary tooth. To prevent this abnormal evolution I decided to remove the common crown to the two teeth. The portion which covered the first molar was very troublesome to remove, and I had to split it on the external surface. I then removed the crown, the tooth coming out with it. As the second molar was entirely covered with cement, I thought that the placing of another crown was not necessary; then, too, the first molars were already erupted, and were sufficient for masticating purposes. Three months afterward the child was brought back suffering very severe pain. The cement had nearly disappeared, and I had to extract the tooth. Such being the case, when I had to remove the crowns of the opposite side I immediately placed a new crown upon the second molar which remained there for eleven months and no complications were ever observed. After this time I removed the tooth with the fingers. I do not need to add that this experience was not lost upon me.

To summarize, I will describe the *modus operandi* that I have adopted, and that I recommend. I crown separately with metallic crowns the four molars of the same jaw as soon as the slightest sign of caries is observed on any one of these teeth. The operation must be done as early as possible, without waiting until pain has set in. We may be sure that teeth developed at the same time will be only equally resistant, decaying with the same facility. By this crowning method caries will be arrested. As soon as the slightest change in the enamel is observed the treatment should begin. The more delicate, nervous, and timid the child, the sooner should the treatment be instituted. It must not be forgotten that pains and troubles of nutrition put the child in a condition of diminished resistance, and render him more liable to

contract the numerous infectious diseases which generally attack young children. As a simple case of caries can be in certain cases the beginning of more serious affections, it is our duty to look ahead and to prevent such disorders. If the treatment is pursued at the beginning of the disease it will be far easier, as the child at that time will not be suffering so much, is stronger, less nervous, and will bear with greater patience the small annoyances of a treatment which, performed at this stage, must be absolutely painless.

Once the crowns are in position, the child will be protected from pain. These crowns should remain in place until the teeth are shed. If one of the crowns should happen to become detached, an accident which should seldom occur, and which I have not observed as yet, it should be cemented again.

As a general rule, it is useless to crown the antagonistic molars, but at the first sign of caries there should not be a moment's hesitation as to the advisability of protecting all the other molars with crowns. I say all the molars, as I wish to insist upon the point that it is always necessary to crown all the molars of the same maxilla as soon as one demands this treatment. This is an essential point in order to prevent difficult mastication, such as would be caused by a lack of contact. The crowning of molars would open the bite, and by so doing the space between the anterior teeth of the superior and inferior maxillæ would be increased. As I have already said, this separation presents advantages when the incisors are frail or decayed. In other cases it is not necessary to pay any attention to the widening of the space referred to, as it is lessened by the retraction of the crowned teeth or by the elongation of the anterior teeth, which for the time being do not sustain the pressure of the antagonistic teeth, and are thus permitted to grow into new occlusal relation.

CONCLUSIONS.

First. Caries of the deciduous teeth presents serious inconveniences ; these are pain, modifications of the articulation and difficulty of mastication, combined with troubles of digestion and changes in the general system.

Second. Caries may be precocious, and appear from the moment of eruption. In such cases it is the consequence of defects in the nutrition of the fetus during the last period of pregnancy, or of faulty feeding of the newborn by the mother. It can also be caused by a precocious weaning, by general infection, or by eruptive fevers attacking the child at a very tender age. Caries can also appear even when the eruption has been regular. In both cases treatment is unsuccessful because the tissues are less dense, the layer of dentine is thinner, and the pulp chamber larger, so that the pulp is more easily exposed and infected.

Third. The crowning of the teeth alluded to with metallic crowns arrests caries. They play an isolating *role*, and protect the tooth from the action of the buccal liquids ; they also have a mechanical function, as they furnish a solid support for mastication.

Fourth. The crowns must be placed on any tooth that is threatened with caries, and all the molars of the same maxilla must be equally provided with crowns to maintain good conditions of mastication. The placing of crowns opens the bite and widens the space between the anterior teeth of the superior and inferior maxilla. This is corrected by the retraction of the crowned teeth or by the elongation of the anterior teeth.

ACTINOMYCOSIS.*

By GEORGE W. COOK, D.D.S., Chicago, Ill.

Actinomycosis in man was first observed by Langenbeck in 1845. At that time he referred to certain of the moulds in connection with the disease. James Israel gave the first accurate description of the micro-organism in 1877. In 1878 it was obtained in pure culture by Bostroem, Wolf and Israel. Bollinger observed the disease in cattle in 1877. Ponfick succeeded in communicating it from one animal to another.

It was first thought to attack the jaws of animals, but has since been found in various parts of the body. The literature up to 1897 gives 577 cases in which the location of the primary lesion is as follows: Head, neck and tongue, 316; thoracic cavity, 131; abdominal cavity, 27, and cutaneous skin, 27.

The Ray fungus has been found in various organs of the body; a case was reported in which there was found in the human ovary an actinomycotic process. Actinomyces has been found in heart, brain, intestine, lungs, mouth, muscles, and thyroid glands.

The cases which I have had the opportunity of seeing are as follows:

First, a Scotch girl about 24, good health, coming directly from the farm in the old country. Some little time before leaving the old country she had a severe toothache in the second lower molar on the right side. The tooth received no attention at that time. Soon she observed an enlargement

* Read before the Chicago Dental Society, and published in *The Dental Review*.

buccally of the root ; there was no pain. Two years later she fell into my hands, with tooth badly decayed. I recommended the removal of the tooth, which I at once attempted to do with forceps, but found it impossible. The roots were so firmly attached to the alveolar process that I found it necessary to take a fissure drill and surgically cut away the bone. After removing all the roots thoroughly, the parts were dressed for a few days, and the patient was lost sight of. But instead of the enlargement going away, it began to grow. The girl consulted several physicians, and was told that it was due to my faulty operating, possibly with unclean instruments. The girl, however, fell in the hands of a medical gentleman, who, after studying the case, recognized the pathological condition, operated, and the girl recovered.

Second case : A man, 28 years, German, referred to me by a physician, to have a lower second molar on right side extracted. I met with the same difficulty as in the first case. After removing the tooth I found a sinus leading from the apical end of the roots into the soft tissue. I secured some Pus that night. The next day, with a mount in glycerine, I could at once make out the ray fungus. Within a few days the patient was operated upon, the sinus was thoroughly curetted, patient put on potassium iodide ; made a good recovery.

Third case : Ranchman, 56 years old, health always good, referred to me by a stock inspector at the Stock Yards. I found considerable enlargement along the buccal surface and angle of the left superior maxillary bone ; the second and third molars being badly decayed. The enlargement was of about eighteen months' standing. In this case I was able to reach the sinus before removing the teeth, thus enabling me to find the small granules which can be seen without a magnifying glass. The microscopic examination revealed the ray fungus. The teeth were removed with the same difficulty

as in the two previous cases. As the man had to leave the city, his home being in South Dakota, I sent him to a medical friend who was practising near. I wrote the doctor what had been done and what the diagnosis was, recommending iodide of potassium, which was followed by the doctor. On last information the patient was considered cured. It would be interesting as well as instructive to us as dentists to discuss the relation of actinomyces to bacteria, but time and space will not permit of such consideration.

There are a few points I wish to call to your attention. It is well known to the bacteriologists that many of the moulds resemble the bacteria. For instance, some of the mycelium threads of actinomyces break up into short segments resembling bacilli. In fact, they may grow as coccus and rod forms, thus appearing as true bacteria. On the other hand, what has been called, until very recently, the bacillary forms have proven to belong to a higher form, and many grow and appear as the ray fungi, the tubercular bacilli, the common bacilli of Asiatic cholera, diphtheria bacilli, and some of the bacteria, causing fermentation, show a branching when grown on certain substances. The thread formation in some of these supposed bacilli was first recognised by Klein, Maffucci and Metschnikoff, the latter placing considerable stress upon the thread formation, and classed them among the leptothrix or cladothrix. Morphologically, the ray fungus seems to be divided into a great variety of species. This apparent difference may only be due to the environment, as is observed in case of a number of bacteria. I have found in pyorrhœa a micro-organism that grows in long mycelian thread, bacilli, and in some cases even as a coccus—all due to change in culture media, brought about by chemical change, also due to changes in temperature, light, etc.

Williams and Goadby have called attention to the thread forms found in dental caries. From observations made by

various investigators I cannot admit of Berestneff's classification of typical and atypical ray fungus, but rather interpret such morphological difference as due to the causes above stated.

Further, Berestneff's classification into saprophytic or non-pathogenic and parasitic, or pathogenic ray fungus admits of the same criticism. It is well known that the pathogenesis of bacteria depends upon the food media upon which they grow—a chemical change here may affect their pathogenesis or destroy it altogether. Another factor which influences the pathogenesis of all saprophytic bacteria is the condition of the individual inhabited by them. A change in the protoplasm of the individual caused by changed environment may change what are seemingly saprophytic bacteria into parasitic disease-producing organisms.

What is true of disease-producing micro-organisms is true also of the acid-producing germs. I have been able to grow the so-called acid proof ray fungus in both acid and alkaline media, sometimes producing acid, and other times alkalinity in the food media. The ray fungus grown in saliva of different individuals shows marked difference in its reaction. The same is true of a variety of germs grown in saliva, which are scarcely ever found in the oral cavity, as well as those that are frequently inhabitants and those that are constantly found. It is a well-known fact that the most virulent micro-organisms lose their pathogenic properties when grown on artificial culture media. The reasons for this are as follows: The normal micro-organism begins, grows and multiplies in any solution capable of sustaining life, just so soon as the chemical composition of said food media changes; such changes always bring about a corresponding change in the growth and virulence of said micro-organism.

All food media contain certain electrolytes, viz., Na, K, Mg, Ca, together with certain organic acid and proteid

matter, forming what is known as ion proteid molecule. Micro-organisms have a zymotic action, i.e., they tend to break up the molecule of the food media, liberating the metallic ions, which readily forms salt; the bacteria reduces the organic matter to NH_3 , carbon dioxide and water. This change is brought about gradually and necessarily brings about a retrograde change in the life of the micro-organism, which shows itself in changed morphology, and virulence. This may help to explain why micro-organisms lose their pathogenic powers, and especially is this true of the ray fungus, which retains its virulence but a short time, if at all.

Regarding the pathology of actinomycosis, little can be added to what has been already written upon the subject. In the jaws, tongue and neck of man, it generally appears first as an enlargement generally causing considerable disfigurement. Sometimes the primary lesion is a hard, red tubercle, or papular formation, with more or less induration. These papular forms continue to enlarge, necrosis and suppuration taking place in the central part, together with the formation of suppurating sinus, the centre of which may show a tendency to granulation, and a process of repair takes place, while new sinuses are progressing at the periphery. In the necrotic tissue and pus a peculiar granular substance may appear, sometimes resembling sulphur granules. In the centre of these granules is found a cluster of the ray fungus. In many of the tumorous formations may be found calcified deposits, especially in the centre of the older growths. When this disease is found in the mouth or jaw-bone, infection takes place through decayed teeth, or where the continuity of the gum tissue has been disturbed.

Treatment. Clinicians have long since recognized the importance of iodide of potassium in the treatment of chronic inflammatory processes; especially in the removal of chronic tumours, as syphilitic gummata, chronic pleural exudates,

and indolent ulcers, and such chronic specific inflammatory conditions as are found in pyorrhœa alveolaris, actinomycosis, etc.

Reasoning from the pharmacology of potassium iodide, we would expect iodide and the iodides to influence such pathological conditions favourably. When potassium iodide is taken into the system it meets the fate of all electrolytic salts. It undergoes the dialyzing action of the cells by means of which it is broken up into its ions, the potassium ion and the iodide ion. The potassium ion soon unites with some acid radical, and goes off as potassium chloride or potassium carbonate, etc., while the greater part of the iodine is eliminated by the kidneys (a small quantity by the saliva and the sweat), a certain definite amount of the iodine enters into a loose chemical union with the protoplasm of the cell, forming what is called the iodine proteid compounds. This is especially true of the mucous secreting glands, which seem to have a greater affinity for iodine than for the other tissues of the body. And right here is where these malignant pathological conditions primarily originate. These loose iodine proteid compounds very slowly break up and liberate free iodine; which accounts for the fact that iodine is liberated from the body for months after the administration of iodine is discontinued. This slow liberation of free iodine in the tissue gives the iodine a chance to act as a mild irritant to the cells, causing an increased functional activity of the cell, thus necessarily increasing food supply, which in turn increases the power of reparative process. Further, this irritating action increases leucocytosis, and cell proliferation, which, according to Mallory, increases the phagocytic action of the cell, thus causing the elimination of bacteria and other foreign matter. This is the real cause for the so-called absorption of new growths, as syphilitic gummata, or chronic exudate, as is sometimes found in cerebral spinal trouble.

This action is simply analogous to the action of irritants applied to the skin for the removal of new growths and inflammatory processes. If irritation simply increases cell life of healthy tissue, and which calls for an increased flow of blood and lymph to the parts, which carries away the dead matter, destroyed by the phagocytic action of the leucocytes and newly formed tissue cell, this action of iodine renders it from a pharmacological standpoint a specific in all conditions in which internal cell irritant is indicated, just as croton oil or mustard plasters for surface lesions; but, in addition to the irritant effects, iodine has an antiseptic action, as it shows a strong affinity for some of the micro-organisms which are causing the internal lesions, therefore it acts in a twofold way, irritating the cell, causing cell proliferation and increased phagocytic action, and showing a special antiseptic property for certain forms of micro-organisms. It was only within a few years that the medical profession have recognized the internal treatment for certain local lesions well known to be of an infectious nature. Less than five years ago I heard an eminent lecturer on pathology and surgery say that this was solely a surgical disease; but to-day the weight of evidence is in favour of the potassium iodide treatment. Dr. Sawyer reported before the Ohio State Medical Society last May seven cases of actinomycosis, diagnosed as such microscopically, which were treated with internal medication, patients having all recovered. My reasons for discussing this part of the subject at this time was to direct your attention a little more to the general constitutional treatment, to some of the local conditions which come to as as dentists, but which is no less a local infection than that of a boil.

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THE DENTAL PROFESSION AND THE BUDGET.

The profession as a rule does not take a deep interest in politics, in fact it is a saying with experienced practitioners that the two topics they avoid discussing with their patients are politics and religion. But politics affect us all, and when the subject takes the tangible form of an enhanced Income Tax, it may be profitable to discuss the bearings of the Budget on the dental profession.

In our opinion the tax will bear very hardly on many of us who already have what we consider more than our just share of taxation. Living expenses have increased all round, and once things have assumed an upward tendency in price, they never seem to come down again. The cost of education and the duration of the medical and dental curricula have both increased, but unfortunately fees have not done so, and now that the Income Tax reduces the guinea to 19s. 10d., the professional class will feel the burden perhaps more than any other section of the community. The rich man will feel the difference but slightly, the so-called "working-man" will feel it still less, for, as a rule, the latter is exempt from Income Tax, he has his children educated at the expense of the State, and there are Hospitals and Institutions without number for his benefit, if he or his family are sick or helpless, and he has no appearances to maintain. It is quite different with the struggling professional man who wishes to do the best for his family, and keep a decent appearance before the world. To any such if they are in doubt as to whether they are paying Income Tax on a higher sum than

they ought, we would give the advice to go carefully over their books and see whether every expense is deducted which ought to be. A tradesman looks upon his shop rent as part of his trade expenses, and in the same way a dentist is entitled to deduct his rent, or at least a proportionate sum for the business portion of his house. If his surgery is separate from his house he pays no income tax on the rent of it. If his house is also his business address he pays no income tax on two-thirds of the rent. Some men would rather not appeal as it wastes time, and perhaps they object to plead poverty, as such a plea might leak out and do them harm. In this case the best way is to claim to have their assessments made by the Special Commissioners under the provisions made for that purpose.

Although we are professional men, business habits should be cultivated. Accounts should be rendered with regularity, and indulgence towards debtors should not be carried too far. When a patient wants to escape payment, we may be very sure that he avoids the dentist to whom he owes money, and the consequence may be a loss of both patient and debt. Again, neglect to require payment in a reasonable time may result in the account growing to a size that the patient may be unable to meet. We would not counsel money-grubbing nor stooping to such tricks as doing work which is unnecessary, but every practitioner ought to make his financial position as secure as he can through industry, thrift, keeping himself up to date, insuring his life, and in fact taking reasonable measures of prudence and foresight. It is much better for the practitioner to retire from his practice than to see his practice retire from him. And when the time for retirement comes, it will be well for him if he has devoted some of his active life to some elevating pursuit outside his strictly professional work. This will provide an interest for his old age and will keep his mind fresh and green, instead of being warped and cramped as is sometimes seen in the aged.

THE NEED OF ARMY AND NAVY DENTISTS.—In a paper read by Mr. Browne-Mason of Exeter, recently, the author urged the appointment of dental surgeons in connexion with the army and navy. In June, 1900, Mr. Browne-Mason examined 151 soldiers invalided from South Africa at the Station Hospital, Devonport, and found that only four had sound sets of teeth. The author holds that early attention to the teeth would be of great benefit to the army and navy, more especially the latter on account of the earlier age of joining the service.

DENTAL ADVERTISING.—That professional ethics have improved considerably is shown by a work entitled "The Surgical, Mechanical, and Medical Treatment of the Teeth"—a volume which contains 320 pages—by James Robinson, who describes himself as "Surgeon-dentist to His Royal Highness Prince Albert; Lecturer on the Physiology, Pathology of the Teeth; Honorary Doctor of Dental Surgery of the Baltimore College of Dental Surgeons." This work was issued in 1849, and the author states in the Preface that it is "submitted to the suffrages of the profession and the public." The volume throughout might be described as a gigantic advertisement, even though it was issued at the preclusive price of 10s.

ADMINISTRATION OF ANÆSTHETICS FOR DENTISTS.—A writer to the *British Medical Journal* asks: (1) May I properly co-operate with a dentist, whose name is not in the *Medical Directory*, by giving chloroform to a patient for the extraction of teeth? (2) May I without assisting in any way be present at the operation?

The *Journal* replies:—In the *Medical Directory* only the names of those dentists who possess a diploma appear, but it

is possible that the dentist may be registered in virtue of having been in practice prior to 1878, in which case he is in the eye of the law in the same position as though he had obtained a qualification by examination; hence the *Dentists' Register* is the only authority, and the *Medical Directory* is useless for this purpose. If the dentist is not registered, the following resolution of the General Medical Council would apply:

"Any registered medical practitioner who knowingly and wilfully assists a person who is not registered as a dentist in performing any operation in dental surgery, either by administering anæsthetics or otherwise, will be liable, on proof of the facts, to be dealt with by the General Medical Council as having been guilty of infamous conduct in a professional respect."

2. To be present at the operation without taking any active part would be infringing the spirit of the resolution, if not its words. It would be countenancing unqualified practice, and possibly, in case of any untoward event, affording some protection to the unqualified practitioner.

IMPRESSION PLASTER.—Dr. Basgard gives the following: "Where there are heavy undercuts, or teeth standing alone, mix with plaster of Paris one-third its bulk of finely powdered pumice. It breaks readily, while giving as clear an impression as plaster alone."

REPAIR OF BROKEN MODEL.—A broken model may be mended with thin oxyphosphate cement, allowing it to harden thoroughly. It is unlikely to break again in the same place.

OXYPHOSPHATE OF COPPER CEMENT.—For children's teeth especially, by barely cutting out the grooves and fissures,

with no deepening for retention, the oxyphosphate of copper cement makes a durable filling. Some put in four years ago were refilled recently, and it was found that underneath these fillings the dentine was hard and polished and the teeth in good condition. What little softened dentine there might have been had become very hard and dense, and the teeth were refilled with very little additional cutting.

A FLUID FLUX.—Dr. Dodel recommends a saturated solution of equal parts of boracic acid and borax which is prepared in the following manner: Mix equal parts of boracic acid and powdered borax and place them in sufficient water to get a saturated solution. This may be determined by a slight residue on the bottom of the receptacle.

TO REMOVE BLOOD SPOTS.—Peroxide of hydrogen used at full strength on blood spots on shirt fronts or collars and cuffs, will effectually remove them without soiling the place. It will also disorganize the fibrin, and remove the blood stains from woollen goods when applied at full strength and subjected to the scrubbing of the goods with the ordinary flesh brush.

SECRET REMEDIES.—At a meeting of the Odontological Society of France the following resolution was carried unanimously: "Considering that every dentist ought to respect his professional dignity and the established ethical code, and considering the dangers which patients run when secret remedies are employed, and that the sale of secret remedies is forbidden by law, the members of the Odontological Society of France undertake to employ no remedy of which the formula is unknown to them, and request dental depots to

refrain from offering dentists remedies which do not fulfil the conditions demanded by the Law relating to Pharmacy."

REMOVAL OF IMPACTED LOWER WISDOM TEETH.—Dr. Shaw in the *Cosmos* recommends the following operation : "The operation consists, first, in locating the tooth with its relation to the ramus and mandible and its bearings on the second molar, with the arteries and nerve underlying, and soft tissue involved. Then, with anæsthesia induced, preferably with ether, the mouth prop in place, the gum or tissue overlying is divided and separated from the bone to allow free use of the bur. With suitable burs the alveolar process and bone impinging about the tooth are quickly burred away to a sufficient extent to allow the dislodgment of the tooth ; the placing of the elevator at the proper point for leverage, upward and backward force applied."

HOW TO COLOUR AN INLAY.—An inlay can never be made to match a tooth when one colour is used in its construction. Take, for instance, an approximal cavity in a central incisor extending any part of the distance from the gum margin to the incisal edge. No matter how perfectly you may match either the incisal edge, which is one colour, and the neck of the tooth, which is another colour, the inlay will look badly, whereas if the neck had been made of yellow porcelain and the tip with blue porcelain or whatever colour was necessary to match it, and the two colours had been given a gradual gradation by blending one into the other, the effect would be very artistic.—*W. H. Taggart, Review.*

EASY REMOVAL OF AMALGAM FILLING.—Dr. Brockway applies a heated copper point to the amalgam filling he is about to remove with the drill, and asserts that it makes the operation much easier.

Abstracts of British & Foreign Journals.

DOES SUGAR CAUSE TOOTHACHE?

A writer in *Science Siftings* says, "One sees various theories propounded from time to time by gentlemen of deep scientific learning (I can now picture one looking at me with benignant countenance and gold bespectacled eyes beaming with enthusiasm), each one of which accounts to its author's entire satisfaction for that almost universal curse of western civilisation, decayed teeth.

Each theory, so far as my recollection goes, proves every other to be absolutely without foundation, and they all prove that the eating of unadulterated lolly-pops and foods sweetened with sugar has nothing to do with decay of the teeth.

If the scientists aforesaid are only acquainted with that tasteless bounty-fed German extract of beet, in England called sugar, my object in writing to you is gone.

We in Australia, when we speak of sugar, mean cane sugar, not necessarily brown sugar, but dry white sugar, brewer's crystals, loaf sugar, anything you like except glucose made with arsenical sulphuric acid.

I am now writing to ask you to let the aforesaid benignant scientists through the columns of your widely circulating journal, know my simple experience of the effects of sugar cane and of molasses or crude treacle, one of the bye-products in the making of sugar therefrom. They may then be inclined to allot to cane sugar its fair share of responsibility for the prosperity of that large class of professional men, who spend the prime of life in pushing ghastly instruments into people's mouths, and sending in huge accounts for work and labour done (or supposed to be done).

My little experience was, that, having some years ago been a guest on one of the large sugar plantations at Mackay in North Queensland, I visited the owner's stables. As I displayed an interest in his fat sleek-coated horses, one of the grooms told me of the sleepless nights these unhappy animals passed through toothache. In verification I examined the mouths of three of them, and found their teeth in a dreadful

state of decay, for all the world like those of poor humanity. The groom informed me that, in addition to the ordinary feed, the horses were given chopped sugar cane and chaff sweetened with molasses, and to this he ascribed the decay.

I am not aware that there was anything in the water given to them (river water), which could have produced such an effect, nor were they fed with those hot foods, the now fashionable scapegoats for caries. Nor have I ever at any other time heard of horses in Australia suffering from caries of the teeth, or being regularly fed on sugar cane or molasses.

REPLANTATION—A CURE FOR ABSCESSED TEETH.

By R. W. HUNTER, of Greenfield, Mass.

This is an operation with which I have had some small experience, though not enough to approach this convention without some trepidation. My method is simple, possibly somewhat crude, but has proved in all cases that I have attempted uniformly successful up to the present. What may happen to these replanted teeth in course of time I cannot say, but I hope for permanent retention. Before I describe the course I have pursued I wish to state that I look at the operation as allowable only as a last resort.

Perhaps there are many among you who never have a case of alveolar abscess that you cannot cure through the roots. I have not been so fortunate, or perhaps I have not the requisite skill.

My first case of replantation to cure an abscess was in June, 1895. The tooth was a left upper first bicuspid. I had treated the tooth for many weeks in hope of saving it, in spite of a sharp curve at the end of the root, and at one time had so far succeeded that I had attempted to fill the roots. Several weeks passed without more than a slight soreness, which I hoped would wear away; but again the pain became more intense, and I had the tooth in as bad condition as at

first. I removed the filling and again attempted to treat, without success. In desperation I finally determined on extraction and replantation.

Administering gas, I extracted the tooth, cleansed it in a solution of listerine and water, cut off the curved portion of the root, filled the canals with gutta-percha and the tooth itself with alloy retained by cement; carefully washed the tooth socket with listerine and warm water and replaced the tooth, which required some force. The tooth was quite sore for from seven to ten days, after which time the swelling and the pain gradually disappeared.

In July, 1897, the same patient presented herself with the upper right first bicuspid in much the same condition. This tooth had been previously treated and the canals filled. In my endeavour to remove the filling from the canal the root was perforated. The tooth was extracted, and the same course pursued as previously, and with equally good results. Both of these teeth are at the present time firmly fixed in the alveolus, and are doing good service. The patient is a young lady of about twenty-two or twenty-four years of age.

The next case was one in which I had but small hopes of success, and of which I have not had any very late information (July, 1897). The patient was a woman of about forty years, of a lymphatic temperament, and quite stout. The tooth was the lower first bicuspid, which another dentist had treated, and trouble had recurred. On opening into the tooth and removing the cotton root-filling I found the root perforated. I attempted to open the canal beyond the perforation, and succeeded in making another. The tooth was extracted, and the former course pursued, filling the root and perforations with gutta-percha. Within two weeks the soreness had disappeared, and the tooth was comparatively firm. In February, 1899, I had the pleasure of seeing the tooth firmly fixed in place.

I will tell you now of a case which proved a failure, though I cannot give you the date of the original operation. I believe it to have been done in the year 1895 by an assistant in the office, on a tooth in the mouth of one of his relatives. This work I can happily claim was not mine, though probably the same result would have followed. The operation was seemingly a success, but after about two years had gone by the patient broke off the crown and a Richmond crown was affixed. Within two years the tooth loosened, and was easily removed with an excavator.

The final case I shall mention is of recent date, and as yet I cannot say how successful it will be. It is the most unfavourable I have tried, and has been the most troublesome. The patient had lost the upper left second molar early in life, and the third molar, moving forward, had filled the space, though tipping forward slightly.

The tooth gave trouble, and I opened into it to do what I could to relieve the patient. The tooth had been treated, and I found the roots filled, as far as I could go, with cement. Fearing to perforate the root, I told the patient what I would advise, and on her consenting removed the tooth, cleansed it, and filled the roots from their apices. Other cases had been easily retained by a combination of rubber dam and silk ligature. This one proved more difficult, however, and I devised a wire ligature of annealed brass wire, which retained it tolerably well.

This operation was performed on October 27, 1899, and at present the tooth is as firmly fixed in the alveolus as it was previous to the operation, though it was not perfectly firm when it first came to my observation.

I do not know that there is more for me to add to this paper, except that in extreme cases I believe it to be a valuable method. I do not claim anything original in the method, and if this effort of mine should interest you so far that you will tell of some cases of your own I shall be amply repaid.—
Cosmos.

PORCELAIN INLAYS BY THE WATER-BAG METHOD.

By I. N. BROOMELL, D.D.S., Philadelphia, Pa.

The principles involved in this method, which, it must be understood, refers to the formation of the matrix only, are closely allied to the process of swaging with the shot apparatus, which includes in both instances a complete envelopment of the object to be swaged by the swaging force and an equalized pressure in all directions at the same time.

The term "water-bag" method does not very fully describe

the process, but it does so to exactly the same extent as does the term "shot" swaging method to that process. The rubber water-bag is the essential factor in doing the work, all other parts being purely auxiliary.

The apparatus consists of four parts, a plunger, a soft rubber block or water-bag, a bed-plate, and a basal portion into which the other parts are fitted. To make use of this device the cavity is prepared in the same manner as for inlay work in general; that is without undercuts and the margins clear cut and without bevel. Disregarding the subject of space, which is requisite in this as well as in all inlay-making when the cavity is situated approximately, you proceed to take an impression of the cavity with wax or impression composition, including in this impression as much of the surface of the tooth as it is possible to obtain, this latter detail serving as a guide for contour, fullness, etc. The concave surface of the bed-plate is next prepared for the reception and ready removal of a body of plaster of Paris. While this body of plaster is yet soft the wax plug carrying the impression of the cavity and associated tooth-surface is carefully forced into it, with the result of forming a plaster duplicate of the cavity and tooth. The work now proceeds in a manner somewhat similar to that of forming a metallic matrix in the mouth. Take a piece of gold or platinum foil somewhat larger than the cavity and trim it to a circular form. This precaution of trimming the foil to a circular form is one which profiteth much, all angular parts about the periphery of the metal sheet serving as they do in swaging ordinary metal plates, as points of resistance and materially interfering with the ready adaptation of the metal to the parts. The metal sheet is slightly depressed into the plaster cavity by guarded pressure from a ball of cotton or other suitable medium, keeping this up until a considerable portion of the metal is brought into contact with the bottom of the cavity, thus reducing to a minimum the possibility of tearing the foil. The rupture of the foil at the point of greatest strain is, however, not a serious complication, as it may readily be bridged over by the porcelain and no harm will result during the baking process. With the foil roughly shaped to the plaster cavity, the swaging apparatus is next used to complete the formation of the matrix. The plaster reproduction of the tooth and cavity, together with the bed-plate, are placed in position in the cylinder, and upon these are placed the rubber water-bag attached to the metal plunger. The entire appara-

tus is then placed on an anvil or other equally solid foundation and the swaging force applied.

The swaging force may be either a blow from a heavy swaging hammer or it may be made by some slow, gradual pressure. A novel but very effectual method of applying the swaging force is that afforded by the downward pressure of a modern operating chair, placing the swager on the circular base surrounding the piston of the chair and gradually allowing the chair to descend upon it. After the swaging is completed the plaster form is removed from the bed-plate and it will be noted that the foil has been forced into very close contact with all parts of the plaster cavity. Without removing the matrix from the plaster, the unbaked porcelain is inserted in the usual way, and the plaster and matrix are then transferred to the furnace.

It is a common rule of technics that all new methods to be of any practical value must possess some advantages over those already in use, and I shall therefore briefly enumerate the qualifications which warrant the recognition of the system just described :

First. Adaptability. The foil is evenly and accurately swaged into and about the margins of the cavity, and, being held in this form by the plaster mould, it is unalterable.

Second. The entire surface of the foil being acted upon by an equalized pressure at one and the same time, results in a matrix free from springiness.

Third. There is no withdrawal of the matrix from the cavity, consequently no alteration in its shape.

Fourth. The work may be accomplished away from the mouth and during the patient's absence.— *Cosmos*.

DENTAL CARIES AS A FACTOR OF DISEASE.

Dr. J. R. Leeson, in the *Edinburgh Medical Journal*, states that hundreds and thousands of people are going about with rotten teeth, carrying with them so many small cess-pools in their mouths, filled with fetid abominations of stinking food *debris*, with its teeming population of micro-organ.

isms, and the resulting toxins as concomitants, and daily swallowing these putrefactions, and absorbing the pus. Many cases of septic disease are due to dental caries, and to that alone. Its effects may be manifested in multifarious ways. Many of the so-called "scrofulous" scars of the neck have had their starting-point in carious teeth. The usual complaint by patients that fresh air will give them face-ache is due in most cases to uncared-for carious teeth. Many laryngeal and pharyngeal troubles have their origin in the same cause. A man with a decayed molar hardly ever has a clean tongue. Insufficient mastication of food is another effect of dental caries. Teeth should be cleaned twice a day, and always the last thing at night. A tooth brush should be considered as a conglomeration of toothpicks, and used accordingly. Children should never be allowed sweets or biscuits on going to bed. And the teeth should be inspected by the dentist from time to time as a matter of routine.

BANDED LOGAN. CROWNS.

By EDWARD C. ABBOTT, D.D.S., L.D.S., Toronto.

In considering this subject, I wish to recall to you methods of adjustment which materially enhance the possibilities for attaining a higher degree of usefulness, and by which we are enabled to combine those æsthetic and hygienic requirements which add much to the success, comfort and permanence of the Logan crown.

A careful consideration of the case is, of course, essential before we decide that a Logan crown will meet all the requirements, as the successful application of this and of all porcelain crowns is necessarily restricted by conditions of occlusion, etc., but when judiciously applied and skilfully executed, the banded Logan may be accepted as being among the ideals of modern dental prosthesis.

It probably might be well to consider, in the first place, a

few of the steps in construction of one of the more familiar methods, viz., the soldering of a gold hood (by which I mean the cap and band) to the post of the Logan. Having prepared the root and constructed the cap and band as for the ordinary Richmond crown, we proceed to adapt the labial face (only) of the abutting surface of the Logan to the end of the root; which, of course, has been trimmed a little below the gingival line. The crown is then cut away slightly at the gingival so as to leave a V-shaped space between it and the end of the root. Now take a thin piece of pure gold and punch a hole in the centre to receive the post, slip it over the post and burnish it to the base of the crown, leaving a portion overlapping the margins. Having cut a hole in the cap in the post place the hood on the root and force the Logan to position. A little wax placed around the post at the base of the tooth, will, when the crown is forced to place, hold the hood and crown in correct relation. Then remove the crown and hood together, the wax retaining their correct relation, and invest. Boil out the wax and solder. This method of construction is analagous, in many ways, with another I more frequently use and which we must concede has many apparent advantages. I refer to the use of porcelain body to take the place of the gold solder, and in which case must obviously use platinum in the construction of the hood. The procedure with regard to making the platinum hood is the same as in the former method and the labial aspect of the abutting surface of the Logan may be ground to fit the root under the free margin of the gum, although accuracy in adaptation does not require so much attention. The lingual surface may also be cut away slightly.

The correct relation and alignment having been secured, the crown is removed and the platinum hood placed on the end of the root, a small hole having been punched for the reception of the post crown. The crown is now placed in position, the post enlarging the hole in the cap as it is forced home. A little temporary stopping is heated and placed in the space between the cap and the crown on the lingual side so as to retain these in position. The crown and hood are now removed together, still held in correct relation to one another, the temporary stopping taken away and with pure gold or platinum solder the post is soldered to the cap. Before soldering I generally wrap the porcelain part of the crown in asbestos fibre, thus overcoming the danger of checking in heating up or cooling off too rapidly.

Before putting on the porcelain body it is well to replace the crown on in position again and make any necessary changes, as the crown at this stage may be quite readily sprung to its proper relation. Having done this, we may remove the crown, which is now ready for the body. Before using the body I find it an advantage to pulverize it thoroughly in a mortar, the ordinary body as supplied by the manufacturers being a little coarse for crown work. Having thoroughly cleansed the parts, the space between crown and hood may now be filled with porcelain body tapped well to place, which is afterwards baked in the usual way.—*Dominion Dental Journal*.

THE LONG-SUFFERING STOMACH.

By SIR LAUDER BRUNTON.

I do not know that there is any organ more long-suffering than the stomach, but sometimes it is treated with so little respect that it goes on strike, and then the consequences for the rest of the body are very bad. Nor do I wonder that it sometimes does go on strike; the wonder is that it does not do so oftener. I have seen a man stick his fork into a new potato bigger than a pigeon's egg, give one gulp, and down it went; and then the man said that new potatoes were indigestible. If he had simply taken the trouble to give his teeth a fair share of the work, he would not have been troubled with indigestion. But the stomach is not a gizzard, and it will not be treated as such. If it is treated thus it is apt to strike, and one of the chief occupations of any doctor who sees much of digestive disturbances, is to insist upon the necessity for rest for the stomach by giving the teeth a larger share of the work, and making the patient eat slowly and masticate his food thoroughly. At the same time we can sometimes ease the stomach by giving less food or more digestible food, for many people eat too much, and many are too careless as to what they eat.—*Clinical Journal*.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN

(Continued from page 428.)

DISCUSSION.

Dr. SIM WALLACE said that he felt he was quite unable to enter into many of the points which Mr. Bennett had brought up; but he was interested in those with relation to the diminished size of the tongue and the general causes which he (Dr. Sim Wallace) had adduced for the prevalence of caries at the present day. He seemed in the articles which had been referred to, not to have expressed himself sufficiently fully; in excuse of that he might say that the essays were written on the subject of the etiology of caries, and the cause of the diminished size of the human jaw was brought in, more or less incidentally, to support the argument. He, however, did consider that heredity played a very important part in the diminished size of the jaw, but that the result had been almost wholly brought about by the elimination of those individuals who had large teeth. A point to which he might refer, was the fact that he did not think Mr. Bennett had appreciated the difference with regard to acquired variations and modifications. From the Neo-Darwinian standpoint the acquired variations were due to variations of the germ plasm. Whatever was the influence that brought about these variations, it certainly did not come from the jaw. But if the variation was good, that is to say, if the variation was such as was conducive to the life of the individual, then that variation would presumably tend to be inherited, whereas another variation—a variation in the opposite direction—would tend to the elimination of such an individual as was unfortunate enough to possess it and tend to do away with the variation in the germ plasm. Modifications brought about by use or disuse affected merely the soma or body cells and could not possibly be transmitted. He hoped that this explanation might indicate the different parts played by inherited varia-

tions and acquired modifications, in bringing about the diminished size of the civilized jaw.

Dr. MILLER : Will you permit me to refer to two points which are dealt with in the paper we have just had the pleasure of listening to. Personally I do not feel quite prepared as yet to adopt in full all of the conclusions which have been presented to us by Dr. Black, although I have a great admiration for his work.

It scarcely appears to me that all the evidence which has been brought to bear upon the subject, taken together, quite justifies us in assuming it to be an established fact that all teeth subjected to the same agents—say, a fermenting mixture of saliva with foodstuffs—would be acted upon in just the same manner and to the same extent.

I call your attention to experiments which I made some eighteen years ago and reported upon in the *Independent Practitioner* of 1883, if I remember correctly. In these experiments I found that when a number of different teeth were broken up and the pieces subjected to the action of a mixture of saliva and foodstuffs at the temperature of the human body, the mixture did not by any means act equally upon all the pieces, nor even upon all parts of one and the same piece. Dr. Bogue, in some experiments recently made and reported upon in one of the last numbers of the *Dental Review*, has arrived at the same results. After all, different kinds of dentine do show differences in the percentage of lime salts present, and the dentine from different human teeth likewise does not always give the same proportion of ashes. This, however, I do not consider to be the only, or the chief question in connection with the capacity of a tooth for resisting chemical agents. Of much more importance, I take it, is the question whether the inorganic salts present have become thoroughly organised or united to the organic portion of the tooth, so as to bring about a stable chemical compound, or whether they represent only a deposit or precipitate of the salts within the organic matrix, and not entering into a chemical combination with it. It is very readily conceivable that a tooth containing 70 per cent. of inorganic matter might form a much more stable compound than one containing 72 per cent. The whole subject of the nature of the chemical compounds present in the teeth is one of an exceedingly intricate nature, and we have not, up to the present, even approached a solution of it.

In regard to the film of micro-organisms mentioned in the paper I am not sure but that we may have attached too much

importance to its presence, especially when we claim, as has been done, that without it acids formed in centres of fermentation would be too quickly disseminated throughout the mouth to have any serious effect locally. The film will be found to be very generally present in all teeth which have stood in the mouth for some time, but especially where they are not kept cleansed by the mechanical action of the food or by the brush, whether caries is present or not. We likewise occasionally find caries beginning where no film is present, without being able to show that the film has been torn away in the process of grinding. I think, therefore, that at present we are scarcely in a position to state just what special *role*, if any, the film plays in the causation of the first stage of caries.

The fact that in caries of the enamel the interprismatic substance is the first to be destroyed was pointed out by me in my "Micro-organisms of the Human Mouth" (pages 169, 170).

Mr. F. J. BENNETT said that he felt sure that they would all be grateful to his namesake, Mr. Norman Bennett, for the matter that he had brought before them. Any one of the many subjects to which the paper referred might afford them work for a whole meeting's discussion. He did not believe that in their specialty there was a great deal of scope for arriving at facts as to heredity. Questions connected with that subject were extremely complicated, and by the time they got up to the subject of man and man's civilization they were more complicated still, and he thought that it would be found that more was to be learnt from the study of animals, as was done in the way of producing varieties of pigeons, breeds of dogs, and so on, than by studying the question in connection with man. With regard to the one subject which had been alluded to by Dr. Miller, namely, the structure of the teeth, their methods were so very imperfect at present, that they were not even able to find the proportion of carbonates and phosphates; and, even if they arrived at a true knowledge of the chemical composition of teeth, they still had their physical properties, which might vary and cause still greater difficulties in understanding the question of liability to caries. But, nevertheless, he thought that they must all admire Mr. Bennett's enthusiasm, and his skill and patience in having collected the facts so far, and he hoped that if they did not fully discuss the paper Mr. Bennett would not be discouraged, but that he would follow up the

subject and give them something which was a little more concrete in future.

Mr. NORMAN BENNETT, in reply, said that if he had misunderstood the remarks which he read in Dr. Sim Wallace's papers in consequence of the fact that they had been somewhat hastily put together, he was sorry that he had done so. Perhaps he ought to have read them again in the modified form in the book which had been published dealing with the subject. The chief point which Dr. Sim Wallace had made in criticising his remarks was concerned with the difference between acquired modifications of the germ cell, and acquired modifications of the body cell. According to Weismann it was only the body cell which could be acted upon in a definite manner, and such a modification constituted the acquired character to be transmitted in the proper sense of the expression. If an acquired modification of the germ cell itself occurred, then, as Dr. Wallace said, that might also be transmitted and produce modifications. As to acquired variation, he (Mr. Bennett) did not know what it meant, because it seemed to him to be a contradiction in terms. A variation was, in the nature of things, something not acquired from without, that is to say, it was due to the varying degrees of prepotency in the constituents of the male and female elements which went to form the ovum. Therefore it was essentially a natural variation and not an acquired variation at all, if he understood it rightly. He was very glad to hear Dr. Miller's remarks with regard to the different extent of caries produced in different teeth under the same circumstances. He was very glad that Dr. Miller went to the length of not accepting the view of Dr. Black that variations producing caries must be sought for entirely outside the teeth themselves. He (Mr. Norman Bennett) would have felt, but for Mr. F. J. Bennett's remarks, that it was a distinct omission on his part not to have referred to Dr. Miller's work bearing on the matter. With regard to Mr. Bennett's remarks, he (Mr. Norman Bennett) quite agreed that the paper covered a very large field and one which was really too large, and he said in the first few sentences that the paper was of the kind that he had the least respect for. But, so far as that went, he thought he might say that there was sometimes a place for a paper of this kind, because one was a little liable to be led astray by proceeding too much upon one's own path, or by following up single lines of research, particularly in a specialty such as theirs, and he

had thought it possible it might do some good for them to remind themselves that there were other people who followed the same trend of thought over far wider areas of knowledge. If he had discussed the subject in its wider scope in detail he should have occupied, as Mr. Bennett had truly said, the time of the Society for a session. He was glad that Mr. Bennett had emphasized the fact that the chemical differences observed in teeth by no means explained the whole thing, and that there were besides physical differences and, probably, many variations of other kinds.

The PRESIDENT having accorded to Dr. Miller and Mr. Norman Bennett the thanks of the Society, said that the ordinary business was then concluded and the meeting would now be made special for the consideration of the alterations of the Bye-Laws proposed by the Council, of which members had received due notice.

SPECIAL MEETING.

The President first read the new Bye-Law (LXXXIX.) proposed by Council, and on its being put to the Meeting it was carried.

LXXXIX.—The Society's property and funds shall be exclusively devoted to the purposes for which it was instituted, and no dividend, gift, division or bonus in money shall at any time be made into or between any of the Members.

The President then took the alteration of Bye-Laws proposed by Council. He first read the old Bye-Law and then proposed alteration, and each was put to the Meeting and carried as follows :—

Bye-Law I.—This Society is instituted for the encouragement and diffusion of knowledge in Dental Surgery, and for the promotion of intercourse among Members of the Dental profession.

Proposed Alteration :—

Bye-Law I.—This Society is instituted for the cultivation and diffusion of knowledge in Dental Science and the branches of Science in connection therewith.

Bye-Law VI.—All recommendations for Resident or Non-Resident Members shall be submitted to and approved of by the Council before being proposed to the Society for ballot. Such recommendations, when proposed to the Society, shall be suspended for one meeting, exclusive of that on which they are proposed, the ballot taking place on the third. No candidate shall be declared elected unless he have the votes of two-thirds of the Members in his favour, fifteen at least being present.

Proposed Alteration :—

Bye-Law VI.—All recommendations for Resident or Non-Resident Membership shall be submitted to and approved of by the Council before being proposed to the Society. The Ballot shall take place at the next Ordinary General Meeting after proposal. No candidate shall be declared elected unless he have the votes of two-thirds of the Members in his favour, fifteen at least being present.

Bye-Law XXII.—Of the eighteen Councillors, three of the Resident, and three of the Non-Resident, shall retire from the Council by rotation annually ; and shall not be eligible for re-election for the ensuing year. The other twelve shall remain on the Council.

Proposed Alteration :—

To leave out the words : — The other twelve shall remain on the Council.

Bye-LAW XXXVI. —The Secretaries shall keep a Register of all specimens forwarded to the Society : cause them to be exhibited at the Ordinary Meetings ; and superintend their return.

Bye-Law LXVI.—The Curator of the Museum shall have the care and direction of the Museum, subject to such rules and regulations as the Council shall lay down for the management thereof.

Proposed Alteration :—

To leave out Bye-Law XXXVI.

And to add the following words to Bye-Law XXVI. :— He shall keep a Register of all specimens forwarded to the Society, cause them to be exhibited at the Ordinary Meetings and superintend their return.

The PRESIDENT having thanked the members for their patience and attention at such a late hour declared the meeting at an end.

Dental News.

STOLEN TEETH.

The mysterious disappearance of a show case of artificial teeth from outside Mr. Richard Elliott's establishment in Nun Street, Newcastle, was investigated by the Newcastle magistrates, on the hearing of the remanded charge of theft preferred against Benjamin Crockett, 27.

Mr. Richard Elliott, surgeon-dentist, of 2, Nun Street, said the case contained 66 teeth, and was of the value of £15. It hung outside the premises where it had hung for over 30 years. He discovered that it was missing on the evening of the 22nd March.

A witness stated that on 23rd March, accused came up to him and asked him to keep for him till the following night a handkerchief, which he said contained a set of dice. On examining the handkerchief afterwards, he found it contained teeth. Witness was taken into custody in connection with the loss of the articles.

Prisoner, who pleaded guilty, was committed to gaol for six months.

ACTION BY A DENTIST.

Mrs. Goodman, of Clapham Park, was sued for the price of artificial teeth by Mr. Collier, dentist, Brixton Road. She said they did not fit, he said they did. The issue was tried in Wandsworth County Court, when the dentist sued for twenty guineas, the cost of the teeth.

The teeth were in court, and Mrs. Goodman went into the Judge's private room, put them in her mouth, and declared they hurt her.

"I think," said the Judge, "that Mrs. Goodman's evidence is as good as anybody else's. She is the best judge of their fit, and I cannot go behind her evidence. Judgment for defendant."

TARIFF CLASSIFICATION OF DENTISTS' APPARATUS.

The Board of Trade have received, through the Foreign Office, a translation of an Order issued by the Spanish Director-General of Customs on the 18th ult., relative to the tariff classification of certain dentists' apparatus imported into Spain.

The apparatus in question consisted of a machine, with thermometer, for vulcanizing india-rubber, a wheel, chairs of jointed iron revolving and mounted on tripods, &c. The Order states that this apparatus is to be classified under No. 294 of the Customs Tariff as "Apparatus for Science and Art, not specially provided for," dutiable under the Minimum Tariff at the rate of two pesetas per kilog. (£4 1s. 4d. per cwt.).

PERNICIOUS ANÆMIA AND THE TEETH.

Dr. Blake writes as follows to the *Medical Press and Circular* :—

Sir,—Whilst I do not desire for one moment to minimise the value of Dr. William Hunter's excellent work—indeed, I look upon it as a model of accurate and careful clinical observation, still, in common fairness, I must put forward a claim to priority in the field. Thirteen years ago, in May, 1888, I read before the Odontological Society the details of a case of "pernicious anæmia, cured by removing suppuration from the neighbourhood of the teeth." In the *Medical Times* of July and August, 1892, and again in my work on "Septic Intoxication," published in September of the same year, I drew attention to the way in which pus-toxins, from any source, could cause grave disturbance of the blood-forming processes in the bone-marrow. In a pamphlet entitled "Sepsis and Saturnism," published the same year, I noted at p. 3 that "septic materials, like lead, strike a terrible blow at nutrition, not alone by disturbing digestion and by inducing a series of dystrophies by way of the nervous system, but

by directly modifying in the most profound manner the hæmatopoietic function of the bone medulla. The extreme pallor of septic and of saturnine subjects bears witness to the fact that a steady osteo-myeloid degeneration goes on in "both classes." As was said before, I do not wish to rob Dr. William Hunter of his well-deserved laurels, but as I was one of the first of English physicians to press constantly on the profession the very great gravity of permitting the absorption of the toxins of *streptococcus*, of *staphylococcus*, and other pathogenic bacilli, drawing attention to their power of developing rheumatism in males and goitre in women (see my work "On Myxœdema and the Goitres," Wright, Bristol, 1894), well, *palmmam qui meruit jerat!*

CLAIM BY A DENTIST.

Norman v. Perry. This was an adjourned case in which plaintiff claimed £3 for a set of teeth supplied to defendant who however alleged they were a misfit, and refused to pay.

Mr. Armitage said he had been instructed since the last Court for the defence, and he thought the best way out of the difficulty would be to further adjourn the case for the plaintiff to make the teeth fit Mrs. Perry, and then the latter would be willing to pay for them. He felt sure the plaintiff wanted her to have a proper set of teeth.

Mr. Ricketts for the plaintiff objected to this course, but his Honour thought the proposal a reasonable one, and adjourned the hearing.

THIS story is related by a West End dentist. Among his patients is an Anglican sister of a closed order. These ladies are compelled to keep their hair cropped quite short, which, of course, in the convent, where they are veiled, is of no account. It was considered undesirable, however, that a mere man should observe this habit, lest he should attach to it any improper meaning, wherefore a wig was hired for the sister to wear when she visited the dentist. An unfortunate

occurrence spoiled the mild deception. Just as the forceps were inserted between the refractory tooth and its fellows, two moths flew out of the lady's tresses into the eyes of the astonished operator.

THE DENTIST QUESTION.

At the Rotherham Guardians the question as to the dentist in connection with the workhouse was again discussed by the House Committee, Dr. Lodge not being present. After consideration it was resolved that the Guardians be recommended not to have a permanent paid official as dentist after the 24th June, and that the Master be authorised to call in any qualified dentist whom he may think fit as occasion arises, and that Dr. Lodge be apprised of the committee's decision.

Truth says "What have the authorities of the Royal Infirmary, Edinburgh, to say to the following story? A gentleman connected with the Press woke up recently one morning and found that his false teeth were not in his mouth. He had, or fancied he had, a choking sensation in his throat, and he hurried in alarm to the Infirmary, described his sensations, and told the doctors he believed he had swallowed his teeth and felt them sticking in his throat. An operation was forthwith performed by one of the surgeons, and under it the patient died. There were no teeth in the throat, and the missing teeth was afterwards discovered in the unfortunate man's bed. This story sounds difficult to believe, and no reference has been made to the incident in the local Press. But I have it from a credible correspondent who vouches for its accuracy, and has obtained his information from a source which entitles the statement to belief. If it can be contradicted or explained, I shall be glad to publish the contradiction or explanation. Otherwise, I should like to know how and why the occurrence has been hushed up."

BIRDS WITH TEETH.

The oldest bird of which we know anything has been chipped out of the lithographic stone of Bavaria. This is the *Archæopteryx*, a creature about the size of a rook.

Its jaws were provided with sharp teeth, its powers of flight were limited, and its tail was long, like that of a lizard, but instead of being scaly, bore twenty pairs of quill feathers. Other toothed birds of younger date have been discovered in the rocks of North America, but even these lived an enormous time ago, when the chalk making up the white cliffs of England was white mud at the bottom of the ocean.

One of these birds is called *Hesperornis* ("bird of the west"), and was not able to fly at all, living by diving after fish, which its long-toothed jaws were easily able to catch and hold.

Another was *Ichthyornis* ("fish bird"), a smaller form possessed of the power of flight, but also addicted to a fish diet. Both these birds had comparatively short, stumpy tails. The birds that lived after this had no teeth at all, except perhaps one that existed when the sticky London clay was depositing in a huge estuary around which grew tropical plants. This bird, *Odontopteryx* ("toothed bird"), possessed structures which have been called teeth, but were not of a genuine dental nature.

COURT OF BANKRUPTCY.

F. G. ROBERTS, Dentist.

The bankrupt, described as of 24, Ludgate Hill, attended for public examination before Mr. Registrar Linklater upon a statement of affairs showing liabilities £558 12s. 8d., and assets £32 13s. 6d. Mr. A. H. Wildey attended as official receiver, and Mr. Pugh appeared on behalf of the petitioning creditor. In reply to the former the bankrupt stated that he had been engaged in business at West Bromwich, Birmingham, Lichfield, Woolwich and Norwood. In March of last

year he and another registered a company under the name of Roberts' Dental Institute (Limited), with a capital of £1000 in £1 shares. No capital, however, was subscribed, and the business premises, which had been taken for the company in witness's name at 24 and 25, King William Street, were given up in the following June. On 17th of that month the bankrupt purchased the dentist's business at 24, Ludgate Hill for £350, payable by instalments extending over three years. He was unable to keep up the instalments in consequence of the business being practically brought to a standstill through premises adjoining having been demolished, and the party wall pulled down. Subsequently the vendor of the business obtained judgment for the full amount owing under the agreement for purchase, and presented the petition upon which the receiving order was made. The bankrupt attributed his insolvency to the failure of another to find the means which had been promised to float Roberts' Dental Institute (Limited), and to other causes. The examination was ordered to be concluded.

THE GENERAL MEDICAL COUNCIL'S FINANCES.

These are the subject of a return, which was laid upon the table of the House of Commons last week. According to the provisions of the Medical Act of 1858, the General Medical Council is required to inform Parliament annually of the receipts and expenditure of the Council, as well as of the branch councils for England, Scotland, and Ireland, and also of the apportionment of the amounts payable to the General Council by branch councils. The revenue of the Council was benefitted to the extent of £45 10s. during the year by the sale of 201 copies of the "Medical Register," and £17 10s. 3d. came from the sale of "other publications." Four foreign medical titles realised £8, and seven colonial medical qualifications at £5 each brought in £35. The contributions to the General Council by the branch councils were as follows:—English Branch Council, £4,491 14s. 1d.; Scottish Branch Council, £2,718 15s. 10d.; Irish Branch Council, £874 0s. 1d. The total income of the Council for the year was £8,543 1s. 1d. Taking the General and Branch

Councils together, it appears that while the total receipts amounted to £11,956 5s. 3d., the total expenditure for the year was £9,910 12s. 2d. The fees and other expenses of the General Council absorbed £3,459 10s., while the Council's printing account amounted to £1,127 8s. 10d. On December 31 last a sum of £1,552 13s. 1d. stood to the credit of the English, Scottish, and Irish Branch Councils. In the course of the year a grant of £500 was made to the Irish Branch Council. — *Pharmaceutical Journal*.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At the recent Examination for Diploma in Dental Surgery the following were the papers.

Anatomy, Physiology and Surgery.

2 to 4 o'clock, p.m.

N.B.—The Candidate is required to answer at least one of the two questions, both on Anatomy and Physiology, and on Surgery and Pathology.

Anatomy and Physiology.

1. Describe the course and relations of the Internal Jugular Vein, and enumerate its tributaries.

2. What is Lymph, and what is Chyle? How do they respectively pass into the general circulation?

Surgery and Pathology.

3. Describe the process of primary union of an incised wound of the skin and subcutaneous tissue.

4. What mischief is likely to result from the lodgment of a foreign body in one of the main bronchi? How would you diagnose and deal with such an accident?

Dental Anatomy and Physiology and Dental Surgery.

5 to 8 o'clock, p.m.

N.B.—The Candidate is required to answer at least two of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery and Pathology.

Dental Anatomy and Physiology.

1. What is meant by the "Homologies of the Teeth"? Discuss the question and give examples.

2. Describe the changes that take place in the Dentine Papilla resulting in the formation of the Human Tooth-pulp and the changes associated with age. Describe the appearances presented by pulps of different ages under the microscope.

3. Describe the typical characters of an Incisor, Canine, Molar, and Premolar tooth. How would you distinguish an upper from a lower canine, an upper from a lower premolar, the right from the left in each case? What is there distinctive between the crowns of the first and second lower premolars, and the fangs of the first and second upper premolars?

Dental Surgery and Pathology.

1. How would you prepare a section for the microscope from a growth on the Alveolar Margin to diagnose its nature? What are the different microscopical appearances met with, and what different growths do they indicate?

2. Explain the term "Odontalgia." What conditions may give rise to it, and how are they to be diagnosed and treated?

3. What different methods are used for producing local Anæsthesia—for the obtunding of sensitive dentine and for the extraction of teeth? What are the drugs employed, by what methods and in what strengths?

LIABILITY POLICY.—A casualty insurance company offers to insure dentists against damage suits for the modest sum of ten dollars per year, and if damages are allowed by the court to pay same up to twenty-five hundred dollars.

DENTISTRY A SPECIALITY.

Dr. H. R. HENSLOWE WELLINGTON (Fellows Road, N.W.) writes to the *British Medical Journal*,—The eye, the ear, the throat and nose are specialities having their respective sections at our annual meetings that one is puzzled to know why the teeth are ignored. Surely dentistry with its enormous strides of to-day deserves a place, at least a section, in our Association. At the annual meeting of the East Anglian Branch of the British Dental Association held at Wisbech last October I proposed the success of that Association and spoke upon this subject matter even to the amalgamation of the two associations. There is a rule in the British Medical Association that none but the qualified should be admitted as members; this may be raised as an objection; but since the General Medical Council thought well to admit them as "registered" why should the British Medical Association think to the contrary? Yet the majority are qualified and many holding medical qualifications. Many of us must feel convinced that dentistry is but a branch of our profession and is not a separate profession held aloof as it at present appears, and the British Dental Association should be invited to amalgamate with the British Medical Association before it is too late, and there should be a section devoted to that speciality—dentistry—at our annual meetings.

DO NOT EXTRACT LAST TOOTH.

Do not extract the last lower tooth in any mouth if it has any kind of a healthy attachment to the jaw. I would not allow the best dentist in the world to take out my last tooth on the lower jaw. Clasp it properly and you will get the blessing of a grateful patient; extract it and the chances are you will have to make excuses about full lower plates the balance of your days.—*W. H. Taggart, in Review.*

APPOINTMENT.

Mr. H. H. Chapman, L.D.S. Ed., has been appointed Dental Surgeon to the Deaf and Dumb Institution, Henderson Row, Edinburgh.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of APRIL, 1901.

Number of Patients attended	1209
Number of Extractions	393
Number of Extractions under Anæsthetics	318
Gold Stoppings	135
Other Stoppings	477
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	452
Gold and Porcelain Crowns	14
Inlays	0
Total	1789

G. H. MEEK, L.D.S.,

B. J. RODWAY, L.D.S., *House Dental Surgeons.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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Plastic Materials for filling Teeth,

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THOS. FLETCHER, F.C.S. WARRINGTON.

Perfected Standard Amalgam, the best for all purposes, in ornamental bottles.....

Ditto in Envelopes per $\frac{1}{2}$ oz., 10/0
 $\frac{1}{2}$ oz., 12/-; 1 oz., 23/-; 5 oz., 110/-
 Per oz.

Platinum and Gold Alloy 20/-

Glass Pestles and Mortars, ground inside 1/6

Porcelain Pestles and Mortars 9d.

Mercury Bottle, containing sufficient pure Mercury for 3 oz.
 to 4 oz. of filings, 1/-; or with Johnson, Matthey & Co.'s
 Electrically Purified Mercury, 2/-.

Per Pkt

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Artificial Dentine, Oxysulphate of Zinc 4/-

Patent Porcelain, Double Phosphate of Alumina and
 Zinc 6/-

Per Bottle

Colour for White Fillings—Pink, Brown or Blue 6d.

Per Btl. Per $\frac{1}{2}$ pt

Copal Ether Varnish 1/- 6/-

Carbolized Resin for Nerve Treatment 1/- 6/-

Each.

Mixing Tube for Amalgam 6d.

Cylinder Mould for Amalgam 9d.

Differential Balance for Amalgams 2/6.

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Besides its other valuable properties, Fletcher's Carbolized Resin will be found the most reliable Styptic in obstinate cases of bleeding.

A plug of Amadou, soaked in Fletcher's Carbolized Resin and packed in the cavity, will often stop bleeding instantly in cases where other remedies have failed.

OTHER PROPERTIES.—It will obtund and harden sensitive and soft Dentine.

In addition, it is a Certain and Permanent Remedy for Pain caused by exposed Nerves.

If it becomes crystallized or too thick for use, add a few drops of chloroform, or warm slightly.

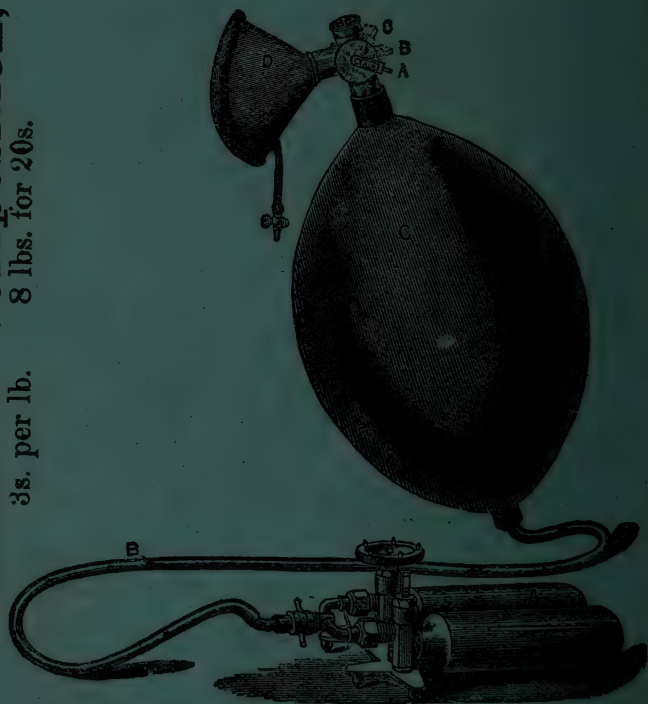
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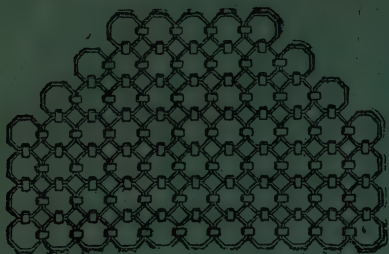
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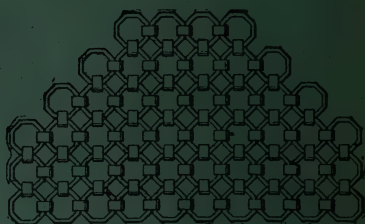
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This Journal is published **TWICE A MONTH**, on, the 1st and 15th.

Advertisements should reach the office by the 10th and 25th.

N.B.—This Journal, having by far the largest circulation of any English Dental Periodical, is the best medium for all Advertisements, and its Edges being cut throughout, all the Advertisements must be seen.

The Journal is supplied direct from the Office, to any part of the world, post free, for 14s. per annum, 7s. Six Months, 3s. 6d. per Quarter, payable in advance.

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A month's notice should be given in writing by subscribers wishing to terminate their subscription before the end of the year. All subscribers not giving such notice will be considered subscribers for the following year.

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NOTICE TO ADVERTISERS. Letters for advertisements appearing in our Journal are allowed to be addressed, free of charge, at our office, c/o us, for yearly Subscribers only. The Subscriber's name must always be given to us, in confidence. All advertisements must be prepaid to insure insertion.

SITUATIONS WANTED.

- American desires position as Assistant in a private practice. Operator and Mechanic. Whole or part time. London or suburbs. Address, "Dentist, 1, Colosseum Terrace, Regents' Park, N.W., London.
- Young Lady desires re-engagement as Secretary Assistant to Dentist. "G.." c/o Segg & Co., 289, Regent Street, London. W.
- As Assistant, plate and vulcanite. Good all-round man, assist in surgery. "H.," 49, St. Thomas' Road, South Hackney.
- Position required by a Dental Assistant used to first class work. Experience desired in surgery. "Dental," 14, Vernon Street, Leeds.
- As [Junior Assistant (Mechanical). Over four years' experience in good country practice. Can extract and take impressions. Good vulcanite and plate worker. London preferred. Giles, Carmarthen.
- Surgical and Mechanical Assistant, age 24, requires permanent situation. Vulcanite, continuous gum, plate, &c. (Coast preferred). Address "Dental," 32, Seabank Road, Southport.
- As Operating Assistant, qualified. Would help in workroom. Permanency desired. "Dens," 10, Morrab Road, Penzance.
- Experienced surgical and mechanical Assistant, thoroughly conversant with bridge and crown work, accustomed to take entire charge of cases. Whole or part time. Write "Radix," c/o Segg & Co., 289, Regent Street, W.
- As Surgical and Mechanical. Used to management. Registered. "Dens," 7, Effingham Street, S.W.
- Dental Mechanic (Junior) disengaged. Good vulcanite worker. 4 years' experience. Address "C.," 55, Great Brunswick Street, Dublin.
- By high class Operator and Mechanic. Would take latter branch only if in London. "Dens," 4, Richmond Road, Bayswater.
- Operator disengaged. Sold practice. Locum work. Assistantship accepted or buy share. Middle-class practice. Walter Evans, 16, Watton, Brecon.
- Wanted $\frac{1}{2}$ day Assistantship (afternoons), full curriculum. Student waiting for November exam. Apply "A.," c/o J. P. Segg & Co., 289 & 291, Regent Street, London, W.

VACANCY for clever Operator. Address with particulars of experience, etc., to "Plugger," c/o Segg & Co., 289, Regent Street, W.

WANTED first class Mechanical Assistant for Lyons, France. Address, stating age, experience, and salary required to Mr. E. W. Harwood, L.D.S., D.D.S., 97, Sloane Street, London, S.W.

WANTED Improver in Surgery and Workshop. Good opportunity. Could board and lodge on the premises if desired. Letters stating wages, experience and references, etc. Send photo if possible. E. Walker, 205, Commercial Road, London, E.

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WANTED for India a good all-round man. Must be well up both in mechanical and surgical dentistry. Passage paid out. Three years' agreement. Apply by letter "T. R. S.," 6, St. Stephen's Road, Lewisham, S.E.

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OWING to the death of owner, a non-advertising Practice for Sale, over 37 years' standing. Splendid house with every convenience. Income £900 a year. No reasonable offer refused. South of Ireland. "K.," c/o Segg & Co., 289, Regent Street, W.

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MECHANICAL Work for the Profession. All branches. Reliable workmanship, perfect fit, best materials, moderate charges and punctuality. Write for terms, London Mechanical Dental Laboratory, 46, Bolsover Street, London. A. Williams, Manager.

FOR Immediate Sale, Practice in best part of East London, surgery, waiting-room and workshop, all on ground floor, with large frontage, doing about £400. Price £275 or close offer, only wants seeing. Letters "S.W.," c/o Musgrave, 15, City Road, E.C.

DENTISTRY. Mechanical Work for the Profession. Gold, D.A., Vulcanite, Celluloid, Tubes, Repairs. Purest Materials. Moderate charges. Established 1835. A. J. Fentiman, Mechanical Dentists (Fentiman & Co.), 2, Upper East Smithfield, London. (The only address.)

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TWO Unfurnished Rooms to Let, £40 per annum, for Dental Surgery. Best position in Albany Street, (facing Chester Gate). Apply Bell & Co., Pharmaceutical Chemists, 96, Albany Street, Regent's Park.

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TUITION. Mechanical Dentistry taught in all its branches including crown, bridge, and continuous gum, by Arthur J. Watts, late Tutor The Dental Hospital, London, (Mechanical Department). Pupils taken for long or short periods, resident or otherwise. 187, Camden Road, London.

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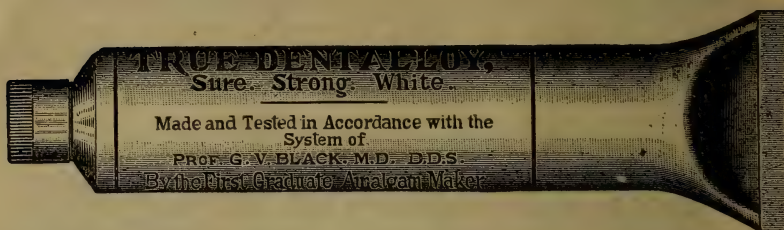
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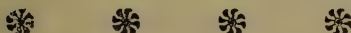
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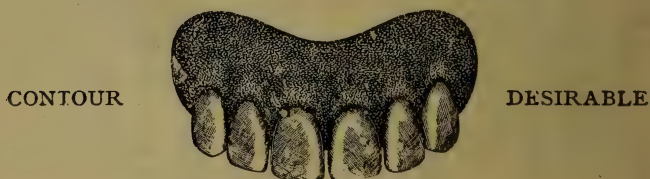
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British Journal of Dental Science.

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SOME OBSERVATIONS ON THE MOTIONS OF THE MANDIBLE.*

BY CHARLES S. TOMES, F.R.S., F.R.C.S.

AND

W. H. DOLAMORE, L.R.C.P., M.R.C.S.

CERTAIN discussions, which have of late years been published upon the subject of the precise direction in which the mandible moves when the mouth is opened, have led the authors to think it desirable to re-examine the question in order to obtain more exact data than at present appear to exist.

Descriptions of the temporo-mandibular articulation are to be found in every anatomical text-book and it is not necessary to recapitulate them here. It will suffice to remind our hearers that the joint is peculiar, indeed, unique, in that the movement of the condyle is not only hinge-like, but this motion is combined with a sliding movement; the condyle leaving its position of repose in the glenoid fossa and mounting upon the eminentia articularis, hence travelling not only forwards but also downwards.

The path of the condyle itself is, therefore, a curve, the

* Transactions of the Odontological Society of Great Britain.

concavity of the curve upon the whole looking upwards and forwards. The hinge movement takes place between the approximate articular surfaces of the condyle and the inter-articular cartilage, the latter accompanying the condyle in the whole of its forward excursion, and furnishing it in all positions with a concave seating. Thus the sliding movement takes place entirely between the upper surface of the inter-articular cartilage and the temporal bone. The resultant movement of the entire jaw is, therefore, compounded of these sliding and circular motions, and, for the present, it suffices to say that the general effect is to make it describe a course anterior to that which a purely circular motion would give.

It is exceedingly difficult to construct an articulator which will give with exactitude the resultant of these motions, and it is well known that in the setting up of artificial teeth it is very rarely possible to raise or lower the bite, taken in the mouth, without disturbing the proper articulation of the teeth. Nor, for reasons which will presently appear, can we hold out much hope that a perfect articulator can be designed.

The late Dr. Bonwill alleged that the motion of the mandible was in the arc of a circle, the centre of which will be found on the plane of the teeth prolonged backwards, so that by placing the hinge in this position true results would be given. This was an improvement upon the articulators then in vogue and was an approximation to a correct movement, but in practice it has not fulfilled the exaggerated claims set forth for it.

More recently Mr. Constant has expressed* the opinion that the mandible "moves as if worked on a hinge," the centre of rotation being a point "vertically beneath" the

* "Journal of the British Dental Association," vol. xxi., p. 324.

glenoid cavity. "The exact position of this point is at the junction of the middle and lower thirds of a line drawn vertically downwards from the glenoid cavity to meet a line drawn horizontally from the angle of the jaw," this point being determined by the antagonism of the muscles of mastication and the depressors of the lower jaw. He regards the impact of the lower on the upper teeth as being "directly upwards," the movement of the lower teeth being "almost vertical." Thus he differs from Dr. Bonwill in placing the point of rotation lower than the plane of the teeth, but on the same vertical line as that writer. As will presently appear this is not far from a true position in some cases, but the statement is much too dogmatic, for our experiments show that the same position is not true for different jaws, nor, indeed, is it always quite true for the same jaw. And the most casual inspection of the series of tracings of the forms of glenoid cavities in different skulls will show that it is impossible for precisely the same curves to be described by all jaws. Mr. Constant further states that he believes the external pterygoid muscles to play a more important part in simple depression of the mandible than is usually assigned to them by anatomists.

The first step necessary for our enquiry appeared to be an examination into the form of the glenoid cavity and of the *eminencia articularis*, in a number of skulls, in order to ascertain how far it is constant. A considerable number of skulls in the museum of the Royal College of Surgeons were examined. The method at first adopted was to take impressions in composition of the surfaces, and, when quite cold, to cut a vertical slice about a quarter of an inch in thickness through the middle. The section thus made could be tried into other glenoid cavities, and its agreement or divergence readily seen. Subsequently, as being a quicker method, lead wire was buried into the cavity, carefully lifted out and a pencil tracing

made round it. It was found that in massive low skulls, such as the Australian blacks, both the pit and the eminence are well pronounced, and, although the cast of one did not fit precisely into others, the divergencies are but slight.

But in European skulls it is quite otherwise; although of course the differences are not on a large scale, the parts themselves being but small, the variations in size and shape are very considerable. It was quite rare for the mould of one to fit reasonably well into any other. The size and shape of the condyles are even more variable, so that it became absolutely certain that no very close agreement in the movements of the mandible in different individuals was to be expected.

For the present enquiry the determination of these facts was sufficient, though a field for enquiry is suggested as to whether these variations are correlated with anything else, such as massiveness of the skull, muscular development, prognathism, age, or anything else. But as a matter of interest the articulation in a few of the apes was examined, and it was found that in the baboon the articulation is quite different. The pit of the glenoid cavity is shallow and ill-defined, even where it can be said to exist at all, and the cartilage-covered eminence is almost a plane surface inclined upwards and forwards. The post-glenoid process, of which an indication is rarely found in man, is strongly marked. Thus, although the condyle can play forwards on the cartilage-covered surface, the upward inclination of this would counteract the effect of the shift of the axis of rotation forwards, and the general result on opening would be very slight, but of course the sliding confers a range of lateral movement when it takes place on one side alone.

In the howling monkey (*Mycetes*) the glenoid cavity is more like the form found in man, but there is a very long post-glenoid process curving slightly forwards, and a facet

corresponding to it on the posterior surface of the condyle. Thus, in this monkey the jaw would be carried forwards and downwards in opening, just as in man, so affording more room for the enormous development of its hyo-laryngeal apparatus. The Aye-aye, whilst having, like a rodent, its condyle elongated from before backwards, has an almost absolutely plane surface in place of the fossa and eminentia. The chimpanzee, the forms of whose teeth approach most nearly to those of man, resembles the baboon in the form of the articular surface, which is very flat, but it has the post-glenoid process less marked, while the plane of the surface is more horizontal.

The Orang is a larger monkey, and has the surfaces both relatively and absolutely more curved, whilst the gorilla has the fossa and the eminence considerably more marked. Thus the baboon, the chimpanzee, the orang and the gorilla form a series in which the flat form of articular surface, common to the majority of the lower monkeys, is seen to be exchanged for a double curve, such as is found in man ; but even the gorilla, which on the balance of characters distinctly stands highest, has a surface which, when reduced to a corresponding size, is far flatter than that of man.

All of the apes share with man the peculiarity that when the jaws are closed there is some unoccupied space behind the condyle. The surface of the temporal bone which has been coated with cartilage is particularly distinct, and is, therefore, indicated in the diagrams, where it is shown extending not quite so far back as the bottom of the fossa.

Hence we may learn that the strong curves of the human articulation have been gradually acquired, and we may venture to surmise in what manner these may be advantageous. In man there are two conspicuous differences from even the highest of the apes, namely, the antero-posterior shortening of the jaw and the complete assumption of the upright posi-

tion. Both of these factors tend to leave less room for the hyo-laryngeal apparatus when the mouth is widely opened. And the complex form of the articulation, which has the effect of carrying the jaw forward as it opens, gives so much more room, and in this way is an adaptation—hitherto we believe unnoticed—to the upright position. That such may be the true explanation is somewhat confirmed by the fact that the howling monkey, who has the most need of such space, alone amongst the lower monkeys approximates to the human form of articulation, and that amongst the anthropoid apes the highest, namely, the Gorilla, approaches this form most nearly.

It is obvious that, the more nearly the head assumes the vertical position, the more will the lower jaw in opening encroach upon the space occupied by the hyo-laryngeal apparatus; and, in this connection, it is interesting to note that the howling monkeys and the gibbons, both distinguished for their vocal powers, have the planes of their occipital foramina nearly vertical, whereas other monkeys approach towards the horizontal position which they assume in man. That in man there is no room to spare anyone can himself feel by carrying the head further back than usual, whilst preserving its vertical position; a sense of discomfort will be apparent in the region of the larynx which is intensified by opening the mouth.

Before leaving the subject of the variability of the glenoid cavity, which an inspection of the tracings will sufficiently emphasise, it may be added that a series of measurements, taken upon European skulls, indicate that this variability extends to surrounding parts. Thus, in an endeavour to find a means of more exactly locating the condyle, which owing to its passing under shelter of the zygoma cannot always be distinctly located by touch when the mouth is closed, it was sought to determine its relation to the auditory meatus. But

it was found that it only gives approximate results, for not only does the meatus vary greatly in size, but the bottom of the glenoid fossa, which is always above it, may vary from .2 to .4 inch in the distance it lies above the meatus and from .3 to .5 inch in the distance it lies in front of its centre. Still these distances may serve to check any considerable error in the location of the unseen condyle.

Other measurements, which may be useful, are that the condyle in five skulls, [which to the eye presented nothing unusual, stood from 1.5 to 1.35 inches above the general plane of the lower teeth; in a single skull, which, though fully adult, was to the eye notably small, it fell as low as 1.25—the average distance from the condyle to the tip of the lower incisor was 4 inches, or a trifle less. And it was found that the angle included between the plane of the lower teeth and a line drawn to the condyle from the tip of the lower central incisor never varied materially from 20°. But here again, as the lower teeth stand on a more or less marked curve, the absolute exactitude desirable is not attainable.

Whilst the authors admit their failure to attain to such precision as they had hoped, they believe, nevertheless, that the substantial agreement of a number of experiments, made as precisely as possible, renders their results an advance upon what has previously been done in this direction.

In investigating the actual movements of the mandible, during opening and closing of the mouth, two methods were pursued, one with the aid of photography the other by means of tracings on smoked paper. Wires were bent to be in contact to the labial surfaces of the teeth, and to their centres pieces of stiff wire were soldered so as to project horizontally forwards. These appliances were fastened, one to the upper and one to the lower teeth, by means of ligatures. Three spots were painted upon the skin, the upper back spot being placed as nearly as possible over the condyle when at rest,

but for the reason already given this may not be quite exact, though it cannot be far from its true position.

A series of photographs were then taken in profile, the first with the mouth shut and the others in various degrees of opening of the mouth; as a check a second series were taken, the camera, of course, not being moved during the series. Then these were successively projected, by means of an enlarging lantern, upon a sheet of paper, the condyle spots and the wires affixed to the upper jaw being made coincident; the four different points attained by the point of the lower wire were then plotted out and joined into a curve. No very material error is possible in the diagram thus constructed, but it is to be observed that these successive positions were assumed deliberately and retained for a few seconds, and the smoked paper tracings indicate that the most constant results are obtained when the opening and closing are rapidly accomplished. Also it was found that, in this same individual, a straighter line, i.e., an approximation to the arc of a larger circle, was drawn when the movement was rapid, and this concurs with the photographic result, where the curve is sharper than in any of the tracings, with a single exception, this being a tracing slowly executed by the same individual. In the diagram the outer line shows the curve described as plotted out with the aid of the lantern; the fainter line, which starts from the same point, is a portion of the arc of a circle such as would have been described by a circular motion, the condyle remaining in one place. These lines, after reduction to the actual length of traverse, are separated at the bottom by about .28 inch, which represents the deviation forwards induced by the sliding of the condyle, but many of the tracings indicate a materially greater deviation, and in this individual the closure path is generally far in front of the opening path, as shown by the smoked paper tracings.

Measurements taken upon a wet specimen, in which all

the soft parts had been removed with the exception of the ligaments of the joint, showed that the extreme possible forward motion of the condyle, without rupture of the ligaments, was a little short of half an inch, which, as this motion is not only forwards but also downwards, is in accord with the results of the photographs and of the tracings.

For taking the tracings the same wires were used, but they were slightly shortened by their ends being bent round so as to scratch a piece of smoked paper placed on a small vertical board, the supports of which were fixed by means of straps round the head.

Of the tracings in general it may be said that the paths described nearly coincide with portions of the circumference of a circle, though they do not do so quite exactly. Curves taken from any one individual differ slightly, though they bear a general similarity to one another, so that it is usually possible to pick them out without referring to the name. When the movements are made rapidly the results are more consistent and the paths less curved; when they present the maximum curvature they will nearly lie on the arc of a circle of about $4\frac{1}{2}$ inches radius, but when at their straightest they correspond to an arc of far greater radius, the curvature in their length being inconspicuous.

This opportunity may be taken of pointing out a peculiarity of the tracings. Inasmuch as the wires practically more than double the length of the jaw, the length of path traced is much greater than that actually traversed by the front teeth. But to and fro motions along the axes of the wires are not similarly exaggerated, but are actual, so that the distance by which the up and down tracks are separated, or the difference between the path described and a circle drawn from the condyle, are actual. Hence had the tracings been redded by photography till the length of the path was the actual one, an error would have been introduced by reductions

in their width which was already correct. Hence the tracings are presented in their original size.

Another character common to all the tracings is that the line drawn in closure never corresponds with that drawn in opening, only coming to coincidence again at complete closure. As a rule the closing track passes in front of that of opening, the maximum divergence noted being $\cdot 18$ of an inch, and the forward movement is sometimes so abrupt that a large open loop is formed at the bottom, indeed in almost all there is some indication of this loop.

It is somewhat difficult to account for this, but we would draw attention to the following facts as a possible explanation. The depression of the lower jaw is partly effected by its own weight, as is noticed in a dead person when the jaw falls, so that the muscles which depress it do not need to be very powerful, and, as a matter of fact, all fulfil other functions in addition to this. But of them the chief, the anterior belly of the digastric, pulls as much backwards as downwards, and when this strain is suddenly taken off, some forward movement might be expected to at once take place. In addition a majority of the fibres of the muscles of closure, especially when the angle of the mandible is carried backwards in wide opening, run to their insertions backwards as well as downwards, so that coincidentally with the cessation of a backward pull a forward one comes into play. Then also, when wide opening of the mouth takes place, there is, as has already been mentioned, some compression of adjacent tissues of the neck, the elasticity of which would operate in the same direction.

But the tracings taken from one individual show constantly the curve of closure behind that of opening, and in one or two tracings the curves cross one another. In this individual the lower jaw was somewhat prominent: nevertheless this would not appear to be the explanation of the difference, for

in another series, taken from a person markedly underhung, and in whom the prominence of the lower jaw is very observable, the closure curve is, as usual, anterior to that described in opening.

Another feature common to many of the tracings is a sort of step, or several steps, near to the top of the closure curves, as if the muscular sense had appreciated that the jaw was too far forward and set to work to correct it. If this forward closure, fully corrected only at the last moment, be the usual thing, which we have no reason to doubt, it may throw light upon those acquired deformities, in which the lower teeth of an individual, previously possessed of a normal bite, assume a position in advance of the upper teeth. Such a case occurred in the practice of one of the authors: the forward position was quasi-voluntarily assumed to avoid contact with an inflamed gum over an unerupted wisdom tooth, and persisted for a time after the removal of the tooth, although the normal bite was after a time recovered. In another case known to us the deformity, of the previous history of which we know nothing save the period of its origin, persisted and indeed increased, and similar cases have been recorded by Mr. Badcock* and Mr. Matheson.† If some condition prevents for a time the complete closure of the teeth the jaw will, as our tracings and photographs demonstrate, hang open in a position slightly anterior to that to which a pure hinge movement of the condyle would bring it, and which for brevity we will call its "pure hinge" position. But we know that bone is, to use, for brevity's sake once more, an expression to which exception might be taken, to some extent plastic; that is to say, the head of a bone in a case of unreduced dislocation soon moulds for itself in a new place a socket more or less resembling its former one. It is quite

* "Journal of the British Dental Association," vol. xx., p. 686.

† *Ibid.*, p. 688.

conceivable that a forward position, consistently occupied for a period, would lead to this becoming the "pure hinge" position, and so perpetuate the displacement; the teeth re-arranging themselves so as to articulate in this new position. And, in passing, we may observe that, whereas some writers have considered that the form of the articulation determines that of the teeth, it is very much more probable that the form of the teeth by, so to speak, dictating the direction of the motions of the jaw, would mould the articular surface.

The sliding motion is combined with the rotation at all points in the path actually described. If a pair of compasses be taken and opened to four and a half inches and a circle be struck having the position of the condyle in repose as its centre, and then short portions of the arcs of circles be struck from four or five of the points which the condyle may be supposed to successively occupy upon a tracing of the glenoid cavity and eminentia articularis, it will be seen that each one of these short arcs crosses the actual path at an angle, and at its lower extremity tends to return towards the simple circle in a degree not shown on any tracing, thus proving that no part of the course actually described could be described by a simple hinge movement.

Thus although the true path described, the resultant of sliding and rotary motions, is pretty nearly the arc of a circle, this circle has its centre at a point far away from any position ever reached by the condyle. Hence, as no portion of the actual path is coincident with the arc of a circle described from, as its centre, any position ever attained by the condyle, the conclusion that from first to last sliding is combined with rotation is inevitable, though at variance with ordinary text-book statements.

It has already been mentioned that the curves actually described coincide more or less exactly with portions of the

circumference of circles of varying radii; those which present the sharpest curvature will lie upon the circumference of a circle of four inches and a half radius, those which appear straightest upon the arc of a circle of much longer radius, of seven or eight inches, or perhaps more; but this becomes of increasing difficulty in exact estimation as the curves flatten. In all cases the centres of these circles lie below the condyle, generally an inch and a half or thereabouts. Hence no articulator, which will perfectly represent the movement in every individual, can be constructed without considerable complexity of adjustment.

The sliding movement of the condyle is brought about mainly, perhaps entirely, by the forward pull of the external pterygoid, which is attached not only to the condyle but also to the inter-articular cartilage. Now this sliding movement commences at the very moment that the mouth commences to open, and although the actual pull is forwards, an inspection of the tracings of the glenoid fossa and the eminentia articularis will show that its first effect is to draw the condyle over a surface strongly inclined downwards, and that the movement does not become to a great degree a forward one until the condyle is leaving the fossa. The relative amount of downward and forward movement must vary according to the shape of the surface over which it is drawn, and a comparison with the finger placed over the condyle will disclose material differences in this respect in different individuals, hence the deviation from the "pure hinge" path commences from the first, and Mr. Constant is probably correct in saying that, for small extents of opening, the motion is nearly vertical.

In one individual it was found possible to carry the lower jaw horizontally forwards $\cdot 3$ of an inch, whilst opening it only $\cdot 2$ of an inch; in this apparently the external pterygoids are put into operation without the other muscles used in

opening the mouth coming into play: the condyle can thus effect the greater part of its full sliding motion without much opening of the mouth of necessity taking place.

We have constructed a working model, which, while of course no great accuracy can be claimed for it, serves to demonstrate how the comparatively complicated motions of the condyle are resolved at the tips of the incisors into a simple curve in advance of the "pure hinge" circle.

A patient upon whom Mr. Victor Horsley had some three years ago performed Krause's operation for the intra-cranial removal of the Gasserian ganglion, which involves the removal of the motor portion of the fifth nerve, presents some points of interest. The movements of the jaws are very free, a separation of $2\frac{1}{2}$ inches between the upper and lower teeth being attainable. But on the right side the external pterygoid, the internal pterygoid, the masseter, and the temporal muscles are all paralysed, and when the mouth is widely open the chin is deviated to the right towards the paralysed side to the extent of about a tooth and a half. This is obviously due to the condyle being pulled forward on the left side, but remaining in the fossa on the right, which can be felt to be the case with the finger, there being a "pure hinge" motion on the right side.

This is just what might have been predicted, but it is curious to find that the jaw can nevertheless be, to a slight extent, deviated to the left of the middle line. This can only be due to the obliquity of certain fibres of the muscles of closure on the sound side, and it would appear that these muscles are able to contract, not merely in their entirety, but that certain portions can contract preferentially.

It is also noteworthy that the internal pterygoid, the temporal and the masseter (muscles of closure) and the external pterygoid and anterior belly of the digastric (muscles of opening) are all supplied by the same nerve, the motor

portion of the fifth nerve. But after all a nerve trunk is only a bundle of conducting wires, so to speak, and unless we knew that their deep origin were identical, the presence of fibres having a different function in the same bundle is not of much significance.

Summary.

1. The mandible in opening moves approximately in the arc of a circle.

2. The centre of this circle is always below the level of the condyle, generally from an inch to an inch and a half. Its radius may be no greater than the length of the jaw, but commonly exceeds it, the centre being usually considerably behind the condyle.

3. The path described is coincident with that of a simple rotation round a stationary condyle only at its very point of commencement, and diverges forwards as it descends.

4. The paths described in opening and in closing are never coincident, but the amount of their divergence is variable. The closure path usually lies in front of the opening path.

5. The size and shape of the glenoid fossa and of the eminentia articularis vary much in well developed European skulls; hence the paths described are not and cannot be identical in different individuals.

6. Whilst the form of the articulation stamps a certain similarity upon tracings taken from the same individual, the laxity of the ligaments and the varying pull of the different muscles allows of some latitude in the path pursued.

7. The form of the articular surface is in a measure peculiar to man, being most nearly approached by the gorilla and by the howling monkey.

DRUGS IN RELATION TO DENTISTRY.*

By Mr. F. A. HOWORTH.

Mr. President and Gentlemen,—The subject which I have chosen for my paper this evening is, "Drugs in relation to Dentistry." A paper dealing with a subject of this nature is, as a rule, somewhat uninteresting, but I hope with your kind and patient attention, to be able to make it of interest and, possibly of use to the members of this Society.

It would occupy too much of our time to enter into minute details concerning all the drugs which may be used in Dental Surgery.

It is my intention, therefore, simply to bring to your notice some particulars respecting the most important drugs used in Dental Practice.

Absolute Alcohol. (Ethylic Alcohol), or pure Spirits of Wine with not more than 1 per cent. of water is used principally in cleansing and drying cavities and root canals. These properties it possesses by reason of its solvent and absorbent powers and speedy evaporation. It may also be used with success in applying to sensitive dentine, which it tends to harden.

Aconite Root is used in the preparation of the Tincture and Liniment. There is also obtained from it an alkaloid—Aconitine—which is its active principal.

The Tincture is the preparation most frequently used by dentists. It acts as a powerful sedative and pain obtundent. The strength of the tincture is now 1 in 20. Fleming's

* Read before the Students' Society, National Dental Hospital.

Tincture of Aconite is 1 in $1\frac{1}{2}$ which is the same strength as the Liniment.

Tincture of Aconite and Tincture of Iodine mixed in equal parts—commonly known as Aconite and Iodine—is of great service in periostitis and whenever the gums have become tender due to the separation of teeth.

Amadou also called German Tinder is a dried fungus and is useful for its absorptive power.

Arsenic. This drug as commonly used is the oxide (Arsenous Trioxide As_2O_3) of the element Arsenic. It is a white and partly crystalline powder, its chief use being as a devitalising agent and as such is very efficacious, one-sixteenth of a grain being sufficient for the purpose. Arsenic is used in the preparation of devitalising fibre and Baldock's paste.

I do not know the exact composition of Baldock's paste, but it contains amongst other things Arsenic, Morphine, and Oil of Cloves.

A good Arsenical paste can be made from

Arsenic in fine powder	...	20 grains.
Morphia Acetate or Sulphate		10 grains.
Oil of Cloves	...	m. 5.
Creosote q.s. to make a stiff paste.		

Dried alum with equal parts of Thymol and Glycerine made into a paste with Zinc Oxide is useful as a mummifying agent after devitalization by Arsenic.

Boracic Acid is an acid obtained from Borax. It is used principally as an antiseptic dressing for granulating and suppurating surfaces. As a lotion or mouth-wash gr. x. or gr. xv., to \mathfrak{z} i of water may be used.

Carbolic Acid or Phenol is a substance obtained from coal tar by processes of distillation and subsequent purification. It possesses antiseptic, escharotic and obtundent properties. The pure substance occurs as colourless, needle-

shaped crystals, and is used in the preparation of liquefied carbolic acid and glycerine of carbolic acid.

The liquefied carbolic acid is made by first melting the acid by means of heat, and then adding one tenth of its weight of water.

The *Glycerine of Carbolic Acid* is made by dissolving one part by weight of the acid in four parts of glycerine by volume. This preparation is useful in being freely miscible with water.

As an antiseptic lotion a strength of about 4 per cent. or 20 grains of pure acid to the ounce is of value.

As an antiseptic mouth wash about 1 per cent. or 2 per cent. is sufficiently strong, about 4 or 8 grs. in ʒi of water.

In combination with solution of Caustic Soda or Caustic Potash, Phenol is sometimes used in the preparation of antiseptic washes for the mouth.

A well known French preparation—Phenol Sodique—is made from the following:

R.	Phenol	...	ʒiv.
	Caustic Soda	...	ʒii.
	Distilled water		ad ʒvi.

One teaspoonful to half a tumblerful of water makes a good mouth wash.

Combined with zinc sulphate in the strength of ten grains of each to the ounce of water this solution is used when diluted in cases of empyema of the antrum, one teaspoonful of the solution to a tumblerful of tepid water being used for each injection.

Creolin and Lysol are both made from coal tar.

Sulpho-carbolic Acid, also known under the fancy name of "Aseptol," is a syrupy liquid mixing in all proportions with water, alcohol and glycerine.

As an antiseptic lotion a strength of from 3 to 5 per cent. should be used. 12 to 15 grs. to ʒi. of water.

Chinosol (Potassium oxy-quinoline sulphonate) is a yellowish powder possessing antiseptic and powerful deodorant properties. It is a non-caustic and does not coagulate albumen, or injure instruments.

Its solution has a somewhat aromatic odour and strong astringent taste. Owing to its non-poisonous and non-corrosive character it can be freely used in dental surgery. It is also a good styptic. Tablets of 8 grains are made and are very convenient.

Being readily soluble in water a solution is easily made by dissolving 8 grains in one pint of water, equivalent to 1 in 1200, which is sufficiently strong for mouth washes, gurgles, etc. As an antiseptic lotion double this strength may be used.

Precipitated Chalk, or precipitated carbonate of calcium is the basis of most tooth powders, but it is not advisable to use it in combination with carbolic acid as chemical action slowly takes place leading to the formation of calcium phenate. This compound though itself antiseptic is less so than the uncombined or free acid. When it is desirable to prescribe a carbolic dentifrice a basis such as Dimatos, or Kieselguhr should be used. These powders consisting principally of silica have no action on carbolic acid. One of the most popular carbolic dentifrices is made with Dimatos. A useful tooth powder can be made from :

Carbolic Acid, liquefied	...	m. 30
Powdered Orris Root	...	ʒi.
Powdered Cuttle Fish	...	ʒi.
Oil of Wintergreen	... ..	m. iii.
Oil of Peppermint	... ..	m. iii.
Carmine	... ..	gr. i.
Kieselguhr or Dimatos ad	... ..	ʒii.

A good antiseptic tooth powder can be made from

R.	P. Saponis Alb.	...	℥ii.
	P. Iridis	...	℥ip.
	Ol. Eucalypt....	...	m.vii.
	Ol. Menth. Pip.	...	m. iv.
	Cretæ Precip.	...	℥ii.

℥ss. of P. Pumicis or P. Oss Sepiæ may be added to above if necessary.

Camphorated chalk, in frequent use as a tooth powder, is made by powdering one part of camphor by means of Rectified Spirit and adding gradually 9 parts of precipitated chalk. The powder is finally passed through a fine sieve.

Cocaine is an alkaloid obtained from the leaves of *Erythroxylon coca*. It is more frequently used in the form of Hydrochloride, to which I shall have to refer later.

Creosote, an oily liquid obtained from coal tar, is a useful antiseptic and pain obtundent, but owing to its unpleasant odour is not in very general use.

Guaiacol is a colourless oily liquid obtained from Beechwood creosote by distillation.

It is an antiseptic and germicide and is useful in the treatment of putrescent pulps. Being more agreeable in taste and odour it is preferable to creosote.

Ergot, Liquid Extract of, is a most useful preparation administered internally for suppressing hæmorrhage. Twenty minims with ten minims of dilute sulphuric acid in ℥i. of water may be given for a dose every four hours.

Essential Oils are the volatile aromatic substances found in plants, and are generally obtained by distillation.

Essential Oil of Cloves is useful for obtunding sensitive dentine and dressing root canals.

Eugenol is the principal constituent of clove oil, and is a powerful obtundent during excavation of cavities.

Oil of Cinnamon like Oil of Cloves is useful for obtunding sensitive dentine and dressing root canals. One of the best antiseptic dressings, which has become quite in general use in this Hospital, is one composed of a saturated solution of Thymol in Rectified Spirit of chloroform mixed with oil of cinnamon.

The following proportions will be found to make a satisfactory preparation.

Thymol	...	3½.
Alcohol or Chloroform		3i.

dissolve and then add

Oil of Cinnamon	3i.
-----------------	-----

I have found that the liquid produced by the mixture of equal parts of thymol and menthol makes an effectual root dressing.

Glycerole of Thymol made in the strength of 3i in 3iii is useful in treatment of pulp and alveolar abscess.

(To be continued).

Sir Edwin Saunders, Surgeon-Dentist in Ordinary to the late Queen, whose death was recently mentioned in the *British Medical Journal*, has bequeathed to the British Medical Benevolent Fund, the Royal British Nurses Association, and the Benevolent Fund of the British Dental Association £100 each. His personal estate was of the net value of £96,527.

British Journal of Dental Science.

LONDON, JUNE 1, 1901.

ORAL SEPSIS AS A FACTOR IN DISEASE.

Dr. WILLIAM HUNTER has done the medical and dental professions, and through them the general public a great service in drawing attention to the fact that a septic condition of the mouth is a very important factor in disease, particularly in pernicious anæmia. In a recent article in the *Practitioner* he discusses in detail the relation of a septic condition of the mouth to various other diseases. He points out that in ordinary dental caries there is a mixed infection, including pathogenic as well as harmless organisms. Consequently, a person with carious teeth not only has pathogenic organisms constantly present in the mouth, but is continually receiving into his stomach, week after week, and perhaps year after year, the same dangerous microbes. Dr. Hunter finds that the result is not limited to fermentation of food substances, but that infection of the mucous membrane of the stomach may take place, with subsequent chronic catarrh and glandular atrophy. Various other effects of chronic oral sepsis are alluded to, and cases are given to show the benefit that may accrue from thorough disinfection of the mouth.

That the loss of teeth is the cause of indigestion and kindred evils has long been known to us, but that the actual failure in mastication is not the only cause is not so generally known. Carious teeth and putrid stumps in the mouth not only mean that food cannot be properly masticated, but also mean that these results of dental caries are the harbingers of pathogenic organisms which are swallowed night

and day and infect the mucous membrane of the alimentary tract. It is within the experience of all of us how quickly patients often improve in health and vitality when diseased teeth and stumps are removed, even when their place is not subsequently occupied by artificial dentures. The reason of course is that the mouth is rendered free from the incubation nests of deleterious micro-organisms which are no longer bred and swallowed.

The knowledge of these facts engenders an important duty on us, which it is criminal to neglect, namely to either remove all carious teeth and stumps or to render them healthy. It should deal a death-blow to the practice of excising the crowns of carious teeth without treating the pulp canals before inserting a denture. It should also make clear to us our duty in impressing upon patients the importance of keeping their plates scrupulously clean and of removing them at night, and it cannot approve of fixed bridge-work, which can never be rendered aseptic.

MUSICAL ANÆSTHESIA.—A paper has recently been read before the Paris Academy of Medicine on the advantages of combining the soporific effects of anæsthetics with the soothing influence of music. According to the *Daily Telegraph*, a prominent physician addressed the Paris Academy on behalf of a Paris dentist who has already applied the musical method with success. The idea of the new process was first suggested by observation of patients under the influence of anæsthetics, the drug used being nitrous oxide. As is known, the incipient effect of the latter is to produce in some cases disagreeable, sometimes almost unbearable sensations, resembling those experienced in nightmare. The dentist in question came to the conclusion that this preliminary ordeal of bad dreams at the commencement of the anæsthetic influence was caused by the perception of noises around by the mind when in a state of still partial consciousness. Why not soothe patients into the required condition of temporary oblivion by sweeter sounds? The dentist tried the experiment, and he and his

patients were alike charmed with the result. The latter were as good as gold, the tooth-pulling operations, not being interfered with by the groans or contortions of sufferers, were performed with the greatest ease, and on recovering consciousness all that patients remembered were bars of the "Lohengrin" overture, for example, still softly singing in their ears. The new method having been invented nothing remained but to bring it to its greatest possible pitch of perfection. The obvious difficulties in the way of dentists habitually keeping bands, solo singers, and choirs on the premises were avoided simply by means of powerful phonographs. Now the operator, whose new method has been revealed to the Academy of Medicine, regularly uses a machine of this kind. The patient puts the tubes to his ears, the music is started, the gas administered, and shortly afterwards the occupant of the once-dreaded dental chair awakes from pleasant dreams to see the smiling surgeon showing him his tooth. Of course a varied choice of musical selections can, and, indeed, should be made to suit different temperaments and teeth. Without going into these particular questions the physician spoke quite enthusiastically about the new process to the assembled academicians. He is eager to apply the musical method to surgical operations in general. He intends making experiments of his own in this direction, and he hoped that some of his hearers would do likewise.

DENTISTS FOR THE ARMY.—We learn that at last our War office has consented to appoint dental surgeons to the forces in a tentative way. A deputation consisting of Mr. Brunton (President), Mr. J. Smith Turner, Mr. R. H. Woodhouse, Mr. S. J. Hutchinson, Colonel Richard Rogers, Mr. T. Gaddes, Mr. F. Newland Pedley, Mr. Norman Bennett, Mr. W. B. Paterson, and Mr. Charles Tomes was appointed to wait on the Secretary of State for the Army with the result that two dentists have been appointed for home districts in London and at Aldershot, and four will be sent at once to South Africa. These latter will receive the usual civilian

surgeon's pay, namely, £1 a day and Captain's allowances. The Government will provide furniture and materials, and we believe the dentist provides his own instruments. We congratulate Mr. Brodrick on a step which is progressive, common-sense and humane.

DENTISTS AND BOARDS OF GUARDIANS.—Recently, the Blackburn Board of Guardians discussed the advisability of appointing a dentist for the cottage homes. The committee had decided in favour of the appointment of such an official, at a salary of £10 a year. Mr. D. Yates, however, thought there was no necessity for such an appointment, as "anybody could draw teeth." (Laughter). The work could be done by Dr. Pollard, the Medical Officer, and, if necessary, children could be taken to the nearest dentist's. Mr. Knowles said they were making the Homes "better than those of the rate-payers round about." Mr. Ashton, chairman of the committee, said if the children could be improved by the expenditure of £10 a year on a dentist they ought to appoint such an official. The resolution was carried, and Mr. J. I. Shorrocks, of Darwen, was appointed.

GLASGOW DENTAL HOSPITAL.—The successful competitors for the Dall Prize and the Ash Prize for 1901 are respectively William H. Benzie, 19 Millbrae Crescent, Langside; and John F. Webster, 6 Highburgh Road, Dowanhill.

BUDDHA'S TOOTH.—During the Royal visit to Ceylon, the Royal party went into the Maligawa, where the sacred tooth of Buddha was exhibited. The tooth was taken out of the casket and handed to the Duke and Duchess, who were given the fullest information regarding the relic. Their Royal Highnesses took the keenest interest in the exhibition of the tooth.

TEETH AND LONGEVITY.—The *Daily Telegraph* remarks:—"Science may claim its share in the remarkable fact that in the ten years 1891 to 1901 the population of England and Wales increased by so large a percentage as 12.15, as against 11.65 of the period from 1881 to 1891. Doubtless national prosperity was a chief factor, but with a declining birth-rate and later marriages, it is extremely probable the ultimate figures will show a lengthening of life and a proportionate reduction of the rate of mortality. To this effect improved medical science and sanitation have largely contributed, and one other cause often overlooked—modern dentistry. In the buried past the relative longevity of animal life can be adjudged with some confidence by the comparative durability of the teeth. In the Natural History Museum at South Kensington the progressive development of the teeth of the elephant is finely shown. But when the mastodon or the *elephas primogenius* wore down the last of his molars there was no replacing them. Man is more fortunate, and it is beyond question that artificial teeth are prolonging life, probably to an extent that would cause surprise if it could be accurately determined."

SYDNEY DENTAL SCHOOL.—The passing of the Dentists' Act last year by the New South Wales Legislature has raised the standard required for study for the dental profession, and the University of Sydney has, therefore, taken steps to supply the want which will be felt, by opening a dental school. The curriculum will extend over three years and has been framed with an idea of making the education and training of the dentist as complete as reasonably possible, and with the idea of giving him a grasp, especially of the scientific aspect of his calling. There is in the bye-laws of the school a provision under which the condition of entrance is that each candidate shall have passed the matriculation examination of the University or some equivalent examination, but persons who have been apprenticed to a dentist for not less than 12 months

before December 31, 1900, may enter upon the curriculum without passing any preliminary examination. There is another provision which enables registered dentists to pass through the curriculum without being required to attend practical hospital work. The first year's study is devoted chiefly to science—physics, chemistry, metallurgy, and anatomy, but it also includes some instruction in dentistry and much practical work in the hospital and the dental laboratory. During the second year the studies in anatomy are continued, and those in physiology commenced, while the course of general surgery is taken. In the third year come bacteriology and pathology, materia medica and therapeutics, in so far as these studies concern the dentist, and details in practical work. The hospital work will be done at the Sydney Hospital, and the lecturers in surgical dentistry are Drs. R. Fairfax Reading, W. S. Hinder, and N. V. Pockley. The lecturers in mechanical dentistry are Drs. A. C. Nathan, A. H. Du Vernet, and A. H. McTaggart, and there are already enrolled some fifteen students.

CINCHONA DENTIFRICE—

Take of

Tincture of catechu	...	170	grs.
Liquid ammonia	...	35	„
Precipitated chalk	...	700	„
Powdered cinchona bark	...	150	„
Powdered sugar milk	...	100	„
Powdered pumice stone	...	30	„
Saccharin	...	$\frac{1}{2}$	gr.
Oil of orange peel	...	3	mms.
Oil of cloves	...	5	„

Rub the tincture of catechu and ammonia water with the precipitated chalk, and allow to stand in a moderately warm place until dry. To this mixture add the remainder of the ingredients previously mixed. Rub the mixtures well together, and pass the powder through a fine sieve.

Abstracts of British & Foreign Journals

DOGMATISM AND CLINICAL EXPERIENCE, ILLUSTRATED BY COMBINATION FILLINGS.

By A. G. BENNETT, D.D.S., Minneapolis, Minn.

In order to show that the profession has always been more or less influenced by the *prominence* of dictators and dogmatists, I will first quote a few sample sayings that seem at first sight plausible, if not reasonable, and yet are most misleading when tested by actual experience. I will introduce these points by a statement of the late Professor Garretson that will serve as a standard of comparison respecting practical operations on the teeth. Alluding to the self-laudatory attitude of some men, he said in substance that we as dentists are too often puffed up by operations no more difficult and delicate than many men perform daily in the arts and industries and think nothing of them at all. Of course this saying is not meant to include the finest operations of our best men, for the art of filling teeth has always been a more or less intricate and difficult operation.

But the kind of sayings that I started out to quote are the partial or fragmentary sort that often ignore not only fundamental facts, but the varying conditions that exist in the teeth. To begin on the surface the first statement relates to enamel cleavage. A prominent man, recently deceased, said in substance that if he had to pay attention to this point in every cavity he would never get anything accomplished,—meaning, of course, that the point was not worth while, or demanded more time than it was worth.

The next point in order of time that I recall relates to the preparation of root-canals. A late college professor, who made no small claims to being scientific, said that a drill should never be used in a root canal, apparently not perceiving that those roots that are drilled out the most carefully as in crowning, can be filled the most perfectly, and, of course, always give the least after-trouble. It is hardly necessary to add that the

very small tortuous canals cannot always be drilled out safely, if at all ; and those turning more or less at right angles are certain to be clogged or the root perforated by even the most flexible drills.

Another man, a prominent professor of *materia medica* and therapeutics, condemns drying out root-canals, claiming that this process is useless, if not injurious, and ignoring the fact that desiccation is one of the essential conditions for all fillings whatsoever. Evaporating germicides in this way is certainly one of our strongest points in filling roots, and the consequent adhesion of the filling material is a point equally strong in attaching or inserting any material to or into tooth structure.

The next point relates to preparation of cavities, the importance of which no man can dispute. But when some men of a certain school preach that all approximal cavities in bicuspid and molars should not only be made much larger than contour demands, but rectangular in shape, and that, too, without regard to the form, density, or sensitiveness of the teeth or the endurance of the patient, the position of these men becomes so untenable as to expose them to just criticism from all sides. Enlarging approximal cavities so as to contour and prevent contact of tooth structure is an old, familiar idea, dating back at least into the "seventies," and "extension for prevention" is merely a new way of stating the old principle. Certainly some of these men go to an extreme that few will choose to follow.

Finally, a point as to porcelain inlays would seem to be very timely. A dentist who has become somewhat prominent through his advocacy of another man's ideas and methods rather than his own, pronounces the inlay to be a humbug, and that, too, in the face of the fact that many careful, skillful, and conscientious men have practiced this method with at least a fair degree of success, and are developing its capacities on several points that promise much for the future. Such men as these are neither consciously nor unconsciously advocating or endorsing a humbug.

I. *Basis for the Theme.*—As a basis for the subject of my paper I will state that science is not only the keynote of the age in a general sense, and the corner-stone of progress of all kinds, but it may be truly called the entire foundation of those arts and professions or specialties which rest on anatomy, chemistry, physiology, and *materia medica*. It must be added, however, that this foundation is imperfect

and incomplete, being still in the process of building. Again, the most marked characteristic of the age is found in a tendency to revise all heretofore accepted knowledge in the light of recent scholarship. To bring our subject still nearer to a focus, there is a marked tendency to strike at the root of much error in all fields of research, and in particular in that of the physical sciences, by depending less on the library and more on the laboratory.

But it should be almost needless to state that the laboratory has its limitations, especially when we must reckon with vitality and mentality, not to mention the personal equation. For my part, I have heretofore been too strongly influenced by laboratory demonstrations, and have been somewhat inclined to undervalue what is familiarly known as clinical experience. In other words I have regarded clinical experience chiefly as the means of furnishing the raw materials of science. But it seems to me that recently the laboratory has attempted to prove too much, and that, too, in the absence of some of the conditions that never can be left out of the equation. On the other hand, some of our writers are misled by appearances to the extent of being satisfied with *resemblances* failing to note *differences*, which are more deeply significant, and therefore not discovering the *relation* of things, which is the ultimate end of science. But to give our ideas a concrete and practical turn, I propose to present some facts found in the mouth and in the teeth that will serve to show that the laboratory as it now stands is not a finality.

I will take the subject of combining cement with gold and amalgam, as I have practised it and as I believe it has been generally practised for about ten years.

I will say in general that our few filling materials have so many defects and limitations that conditions demand, and experience fully justifies, their combination, for in this way only can be secure all their better qualities and eliminate as far as possible their marked defects. All tissues and materials are more or less permeable, and cement more or less soluble; and the central principle or the supreme object in all our work, especially in fillings is to obtain as perfect a joint as possible, since absolute perfection is out of the question. I will add here that I have always cultivated the habit of carefully inspecting the crown and root fillings found in teeth that I have extracted. Recently this source of study has been very limited, though of course as reliable as ever.

II. *Method of Combining Fillings.*—My first ideas on the

subject of using cement under fillings were published in 1884. I then used it under all large and deep fillings, but allowed it to set before completing the operation. I used this method for about five years with much satisfaction as to comfort and durability. It is described in the "American System of Dentistry," Vol. II, p. 249. This method I now regard as crude and primitive. As soon as Dr. Clapp, of Boston, published his method of using copper amalgam under gold it at once occurred to me that cement used in that way would be a decided improvement, and from that time to this it has been my practice to use cement under gold and amalgam in all cavities except the very smallest and corners on front teeth. I do not claim anything original or exclusive in this method, but I refer to it at this time to show its strong points, among which are the following:

1. The cement when properly used makes the most perfect joint of all our filling materials.

2. The cement is decidedly adhesive, and answers the double purpose of sticking tightly to the tooth and making an adhesive anchorage for the gold or amalgam.

3. It is a comparatively good non-conductor, and when properly used does not irritate the pulp through thin walls.

4. It greatly adds to the strength of the tooth, because less undercut is required and because of its adhesiveness.

5. If used in a thick enough layer it reduces if it does not prevent, the discolouration of amalgam. In the case of gold at least, and generally in the case of amalgam, there should be no cement on the enamel margin.

6. By reason of less cutting and undercutting this method greatly reduces the pain of preparing cavities, even those of the rectangular form.

7. And last, but not least, with busy men this method is a great saver of time: in particular in gold fillings, since about one-half or two-thirds of the filling can be packed by hand pressure while the cement is setting.

Having given the principal advantages of this method, I will next consider several objections that have been urged against it.

First. It is claimed that all cements are more or less permeable by the fluids of the mouth. This objection I propose to answer not so much by arguments as by facts resulting from observations of the conditions found under fillings. These I will give later.

Second. That all cements being soluble in the oral

fluids, they are not sufficiently permanent to be part of a permanent filling. This objection can be met in the same way as the preceding one,—namely, by facts resulting from observation of the conditions found under fillings.

Third. Experiments in the laboratory may seem to damage this method, but, without questioning the results of such experiments, I must still insist that they are not well sustained by the conditions actually found under fillings.

Fourth. A fourth objection, that this method leads to careless and rapid operating because of its facility, need hardly be considered by careful and conscientious men. I am reminded at this point of a late meeting of the National Dental Association, where a dentist, recently somewhat prominent, announced with no little flourish the discovery of the permeability of cement. For my part, I had always thought this point so obvious that I had taken it for granted. Solubility and permeability are, of course, not one and the same thing, but the former could hardly exist without some degree of the latter. Solubility in some degree has always been so well known that insolubility has become the supreme quality claimed or sought by all dealers and manufacturers. Let us hope they will not seek in vain. In short, the objections are more due to the limitations of the operator than to the limitations of materials. If to the cohesiveness in the materials we can add adhesiveness of the filling to the cavity wall, we may justly claim a *coherency* in the entire operation that has heretofore been conspicuous by absence. To sum up, all materials are more or less permeable, but as cement, though somewhat soluble, tenaciously adheres to the tooth-walls, as well as to the amalgam or gold, it can be truly said to make a moisture-tight joint, and is therefore practically impervious as regards the cavity wall, and relatively insoluble. It is presumed that all have observed the two familiar facts,—namely, that in filling with cement alone the material clings to the wall till the last particle is gone, and that therefore under such fillings re-decay does not occur until the cement is entirely destroyed. In other words, the best quality of sticky cement gives the best possible protection to a thoroughly dried dentine wall. Of course the cement is not supposed to extend over the enamel border, which in the case of gold, at least, must be protected by more or less *direct* packing of the filling.

The last objection leads me to remark that the highest success by this method cannot be obtained without the utmost

care and precision in each step and in every detail of the operation. Though the essentials to success are familiar to all who have practised this method properly, they are important enough to require repetition.

The cavity should be prepared so as to conform to the basal principles and requirements as to separation of tooth-structure and contour of filling, retaining form in the cavity, bevel of border, and room for the free use of instruments; but, in addition to these, there must be perfect dryness, obtained by the application and evaporation of carbolic acid and alcohol, equal parts, and afterwards of pure alcohol. The parieties of the cavity should then be *lightly* touched with the fluid that comes with the cement, but for obvious reasons this should not be applied directly over an almost exposed pulp. And in any case the least excess of this fluid should be absorbed with cotton.

A sticky cement should be chosen and mixed thoroughly and quickly, and quite thickly in many cases, especially for amalgam. With gold, any too great excess in the cavity will be found to be a detriment. The cavity should be merely lined, or one-fourth full.

The gold should be prepared from halves or thirds of a sheet, rolled and cut into pellets to suit the length or width of the cavity. For packing I prefer a double-end plugger, with a heavy handle. When the cavity is one-half or two-thirds filled, fully five minutes, and often more, should be allowed for the cement to set before finishing the filling.

Next remove all cement from enamel walls, and then condense and level up the surface of the gold with an automatic mallet, though of course a hand mallet answers the same purpose. But for completing all fillings I have a decided preference for the electric mallet, for the reason that with it I can get a better adaptation of the gold to the enamel walls, including the ultimate margins. I will digress for a moment to add that I am convinced from what I have seen that nearly all failures with the electric mallet are due to the long, heavy blow that nearly all use when they begin with this mallet, and by which the patient is tortured and the operator disgusted. I find that a blow about one-fourth the possible length is amply sufficient. Most of my patients prefer the electric to any other mallet, and I use all the approved kinds to meet conditions and preferences. When the blow of the electric is a mere vibration, and the mallet is used but ten to twenty minutes in any case, the maximum of good results is

secured with the minimum of discomfort. I have seen some of our best men use this mallet by the hour, and I am convinced that our Webbs and Browns used it too exclusively in all parts of all fillings; and the interminable "clitter-clatter" became a heavy and needless tax on many a high-strung, nervous patient.

In the malletted portion of the filling I use ribbons exclusively. In the hand-pressure portion of the filling quickness and accuracy in placing and packing the pellets at the ends and around the floors of the cavity determine the success of the entire operation. Some of the first pellets may move, but as long as the cement is soft they can be perfectly replaced, and will hold as securely as if not disturbed at all. In a cavity with walls all around, and with the cement mixed thick enough, each pellet remains just where it is placed. In a long, shallow cavity it is always best to make two mixes of the cement, one for each end. In building on a corner deeply anchored a very little cement may be used in starting, but none should be used in the anchorage at the cutting-edge of the incisors.

III. *Practical Cases.*—I have used this method with gold and amalgam for about ten years, and as examples of its reliability, as well as superiority in most cavities, I have selected the following typical cases in which fillings have been in from five to ten years, as well as some that have broken away much sooner, thereby giving me a chance to inspect the work in all its parts.

Case 1.—Mr. M., with very large and thick but "cheaply put together" teeth, with very large cavities and thin walls. I filled the upper bicuspid and incisors on all approximal surfaces, first using a liberal quantity of cement and then amalgam, even in the palatal parts of the canines, facing with gold all fillings that were exposed to view. After seven years I find no re-decay, though some edges of cement are clearly seen, and the gold margins over the amalgam are a little bluish and imperfect. The thin line of cement when examined with a glass makes a much better showing. The teeth bear marks of vigorous use and a fair degree of care.

Case 2.—Mrs. C. All molars and two bicuspid gone, and occlusion almost entirely on front teeth. The upper incisors are thin, narrow, and frail, and all decayed from gum to cutting-edge, and walls very thin or broken away, but all teeth still living. In these long, shallow cavities, with thin walls and slight anchorage, I put gold fillings, which were

largely retained by cement linings. In about two years two of the fillings were forced out, carrying some cement and the outer walls with them, and leaving some cement, dry and flint like, closely adhering to the floor of the cavity. One pulp had to be destroyed; the fillings were replaced, and are still retained. After carefully examining these two failures I was convinced that without cement these fillings could not have been retained nearly so well, nor would the pulps have been so well protected. The adhesion of the cement, both to the tooth and the gold, as well as its hardness and comparative dryness, tells its own story. There was evidence of undue force on these fillings, which accounts for their displacement. The others are doing fairly well.

Case 3.—Miss M. Similar to preceding as to size, number, and position of fillings, but the teeth are thick, somewhat crowded, protruding, and lacking in density, with the posterior teeth all in position. The teeth contained a number of leaky fillings, shown by the bluish, unsightly colour. The patient was anxious to have the protrusion corrected, and, if possible, the teeth made smaller. I did both by trimming away each approximal surface, which made some of the cavities quite shallow. I next filled these fan-shaped, rather large teeth with cement and gold, leaving space enough between them to admit of their being drawn back till they touched the lower teeth.

Most of these cavities were so shallow, the pulp so large, and the dentine so sensitive that I was almost forced to depend mainly on the adhesion of the cement on the rather broad floors of the cavities for anchorage. After six years the fillings are intact, the margins good, though the cement comes nearer to the borders than I had intended it should; in fact, a thin line shows in several places.

In the same case the distal surface of a bicuspid was gone, leaving an almost level surface, without walls and very sensitive. After a rather imperfect preparation, medication, and thorough dessication, with a sticky cement and amalgam I restored the approximal surface to its original contour. I cautioned the patient not to expect too much of the operation, for I felt very uncertain as to its permanence. With a normal occlusion, the filling is still there after more than six years of service. (I lately found that this case had failed, being undermined by a deep cavity on the opposite side of the tooth.)

Case 4.—Mr. K. This case illustrates the density, dura-

bility, and adhesiveness of cement under amalgam after eight years. The amalgam was undermined by re-decay along several margins where there was no cement, and the case came into my hands for refilling with gold. On removing the amalgam from these soft and imperfect teeth I found re-decay just where there was no cement,—along the walls,—while on the floor of the cavity the cement was so flinty and closely adherent that I had to remove it with a spear-pointed drill. I prepared in the usual way, and filled these four large approximal cavities with cement and gold; and I shall be doubly interested in watching this case and recording its history.

Case 5.—Miss M. A case came into my hands which had failed, a second and third molar still vital and with entire occlusal surfaces denuded of enamel, without walls, and with very little undercuts of the most shallow kind in very sensitive dentine. Crowning was hardly advisable or available, so I cleansed and dried the surfaces thoroughly, restoring them with cement and amalgam. After a year the fillings are still there, though the previous fillings had been shed in a few months. But it is needless to say that their history is still to be written, and I will add that the reputation of a prophet might be poorly invested in these same fillings, even though I did the best I could under the circumstances.

As I have said, I use this method in all except very small cavities and most corners on front teeth. It has not such a high degree of merit, except speed, in hard or dense teeth as in those below the average in density. Without discussing the quantity or quality of calcium salts such teeth, or any teeth, contain, I will simply say that I regard this as the method *par excellence* for “cheaply put together,” and therefore more or less perishable, teeth. With such teeth, perfect dryness, and a good sticky cement one can fill even the softest of them with gold with a good conscience and confident expectation of success; and the “all-gold” man and the “commercially minded” man will be able to render better account in every sense of the “day’s doings.”

I might say, finally, that I notice lately some strong claims made for the durability, as well as good colour, of fillings made by mixing cement and amalgam into one mass before placing into the cavity. I doubt not the claims are well sustained, because based on experience in the mouth,—the only thing that entitles any one to an opinion worth recording.—*Cosmos*.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.*

Ordinary Monthly Meeting, Monday, April 22, 1901. Mr. John Ackery, M.R.C.S., L.D.S.Eng., President, in the chair.

The Minutes of the previous Meeting were read and confirmed.

The following gentlemen signed the Obligation Book and were formally admitted Members of the Society: Messrs. Leonard William Forsyth, J. T. Craig, and H. E. Cribb.

Messrs. Walter Green and W. Pearce Powell having sent signed obligation forms, were declared admitted by the President.

The following candidates were elected members of the Society. Resident members.—Frederick Breese, L.D.S. Eng., 256, Kennington Park Road, S.E.; C. Cecil Robinson, L.D.S., Eng., Hambly, Streatham Common, S.W.; F. J. Morgan, L.D.S. Eng., 20, Gower Street, W.C.; H. Bellamy Gardner, L.R.C.P.Lond., M.R.C.S.Eng., 52, Beaumont Street, W. Non-resident members:—T. S. Muspratt Hall, L.D.S.Irel., Merlewood, Conway Road, Colwyn Bay; Herbert Williams, L.D.S.Eng., 32, Shipquay Street, Londonderry; H. Maurice, L.D.S. Eng., 62, St. John's Terrace, West Brighton.

The following gentlemen were proposed for membership. For resident membership:—Percival Sidney Campkin, L.D.S.Eng., 30, Wilton Place, Belgrave Square, S.W. For non-resident membership:—Edward P. Collett, L.D.S.Eng., 8, St. John's Street, Deansgate, Manchester; Joseph Ainsworth Woods, 76, Mount Pleasant, Liverpool.

LIBRARIAN'S REPORT.

The Librarian (Mr. H. Baldwin) announced the presentation to the Library of Mr. Mayo Collier's book on "Mouth Breathing."

* Transactions of the Odontological Society of Great Britain.

CASUAL COMMUNICATIONS.

Mr. WILLIAM HERN showed a patient with a curious growth in the mouth. The patient presented herself at the Out-patient Department of the Middlesex Hospital, with a growth which, in his experience, was unique in shape. The only case he had seen at all like it was one from the same hospital some years ago, which he reported to this Society, but that was a more rounded growth and a much larger one; it also was strictly pedunculated and growing from the margin of the alveolus as in the present patient. The growth in the present case was flattened, pedunculated and dependent from the lingual side of the alveolar border about the canine region of the upper right maxilla; it was somewhat fusiform in shape, about $1\frac{1}{4}$ in. long, $\frac{3}{4}$ in. wide at its widest part, and $\frac{1}{8}$ in. thick. The patient was a young woman of 30 who had worn a plate for five years. The growth commenced more than two years ago. He thought it consisted almost entirely of mucous membrane. It was not very sensitive, and might be called a fibrous epulis. It was apparently a bit of mucous membrane which had been flattened against the hard palate by the wearing of the plate.

Mr. J. G. TURNER said he had seen the growth, and thought it probably began as an inflammatory enlargement between two dirty teeth, and then enlarged into the vault of the palate with the pressure and movement of the plate, just as the tags in the knee joint enlarged, and as a tag was found on a cheek sometimes where the cheek was constantly bitten and drawn in between the teeth. He thought the whole was inflammatory in origin.

Mr. F. J. BENNETT brought forward a communication on a case of "Deafness dependent on Dental Lesion": which ran as follows:—The notes which I bring forward this evening, although of interest, would hardly justify recording before this Society except on the ground that it may lead members to an expression of opinion, either as to its pathology, or as it bears on cases in any way similar that have come within their own experience.

Towards the end of last year I was asked by a patient, a lady of middle age, to extract some loose roots of teeth belonging to the upper second and third molars, not on the ground that they were aching or had any obvious signs of mischief, but because it was hoped that they were in some

way connected with an obstinate deafness, which had failed to yield to the remedies which she had adopted. Considering that the deafness was in the ear opposite to the side on which the roots were situated, and further, that they appeared loosely attached and not obviously inflamed or unhealthy, I rather demurred at the possibility of expecting the deafness to be relieved by the extraction of the roots; nevertheless I was persuaded to remove them and was much surprised to find that the deafness at once entirely disappeared. The patient fully understood that the connection between the ear trouble and the roots was remote and unusual, and at her own prompting sent me her history of the case in a letter which I will now read :—

“ I had suffered for some weeks from a succession of head, throat and chest colds (being subject to bronchitis), which caused difficulty in breathing. To cure these I tried the usual remedies, but could not entirely get quit of them, and for about a month became more and more deaf in the right ear, accompanied with much discomfort of a buzzing sound in the ear, and slight pain occasionally. I concluded the deafness was due merely to cold, but the departure of the cold did not remove it.

“ I wear steel-rimmed spectacles for reading, and the deafness became very pronounced several times when I had them on. This somewhat alarmed me, as it was not the result of fatigue, and I thought possibly the wires of the spectacles might be injuriously affecting the nerves of the right ear. I therefore, for some days, abstained from putting them on, but the deafness and discomfort continued as before. Accidentally pressing the left side of my face (close to the left ear), I found that whilst I did so I could hear with the right ear, but on removing my hand from the left side of my face the buzzing and deafness recommenced in the right ear.

“ This seemed to be due neither to colds, nor to the spectacles (or at least not wholly so), for the departure of both did not improve matters.

“ I had no toothache, but as I was going out of town, I chanced to have two back-tooth stumps extracted that were in the left upper jaw, not because they ached, but simply because they were useless and might ache, and had occasionally done so, and they were objectionable. Immediately on their extraction I found I heard perfectly with my right ear, and the tiresome buzzing in it ceased, nor have I since been troubled with it.” She adds : “ The deafness undoubtedly

arose from the right ear ; the proof of this is that I could not hear at all with it, and had to turn my left ear foremost in order to hear what was said."

In a subsequent note, four months later, she writes as follows :—

"The deafness that was relieved by the extraction of the roots has been quite cured. It never recurred since the moment of the root extraction, and that although I have since suffered from both head and chest colds."

These are the clinical facts of the case in the patient's own words, and it will be seen that she had no symptoms that suggested a connection between the ear and teeth. In attempting an explanation we have to fall back on conjecture, and have to trace a path between the tooth as cause and the deafness as effect. To assume that path to be along the course of a nerve or nerves and due to reflex action would be difficult, even if the cause and effect were on the same side of the body ; it becomes much more so when it occurs on opposite ones. It seems to me highly probable that, as a result of decomposition in the root, volatile septic matter had found a way into the soft tissues of the palate, passing to the opposite side and ascending along the fibres of the palate muscles, producing a cellulitis round the Eustachian orifice and so obstructing the sound waves.

Sir Lauder Brunton, in March, 1880, in a paper on "Nervous Diseases connected with the Teeth" read before this Society, remarks :—"From the close connection that exists between the throat and ear, we would expect deafness to be not infrequently the consequence of dental irritation. It seems, however, not very frequent, although it does exist, as shown by the following case recorded by Kœcker. A man, aged 48, suffered from suddenly increasing deafness, but after his teeth, which were carious and had caused suppuration of the gums, were extracted, he completely regained his hearing."

The only other record I can find is that by Mr. W. Elliott in the *Journal of the British Dental Association* for April, 1886. He alludes to a case of severe deafness with pain referred to an upper molar on the same side, unrelieved by treatment, but ultimately cured by dressing and plugging a carious cavity on a lower wisdom tooth of the same side.

I shall be glad to hear the opinion of members of the Society.

Mr. H. BALDWIN thought that if it was to be assumed that the deafness had any connection with the roots, and one might put aside the possibility of hysteria having been the cause, the only real connection there could be between the condition of the roots and the hearing must have been due to an inflammatory blocking of the Eustachian tube, so preventing the equalization of pressure of air in the tympanum.

Mr. J. H. MUMMERY mentioned that he had met with a case of almost complete deafness on one side from an unerupted wisdom tooth in a lady aged 45. She had become very deaf on that side, but after the tooth was extracted she recovered her hearing almost immediately.

The PRESIDENT asked whether Mr. Mummery attributed that to continuity of inflammation or to nervous disturbance?

Mr. MUMMERY said he did not know what to attribute it to. She suffered no pain, and there was no appearance of inflammation, and no abscess. He thought it was probably reflex.

Mr. BALDWIN said the reason he did not mention reflex possibility in the case was that he did not believe there was a single substantiated case on record of reflex disturbance of any organ occurring from a tooth on the other side of the body. If it had been on the same side of the body it would naturally have been considered reflex nervous effect, but being on the other side it could not be so considered.

Mr. W. HERN asked if there had been any history of the patient having had any catarrhal affection of the Eustachian tube on the same side before? It seemed to him that a slight local depletion of blood, such as would result from the extraction of roots of teeth, might have somewhat relieved any concomitant catarrhal inflammation of the Eustachian tube, causing the deafness referred to.

Mr. F. J. BENNETT, in reply, said the idea had occurred to him that the local depletion might have had some effect, and at first he attributed it to that. Mr. Baldwin's suggestion that it was not due to reflex action was quite in accordance with what he had said in his paper. The members were all familiar with cases in which pain and tenderness would occur at a remote point from a troublesome tooth. It was found not unfrequently that septic gaseous matter passed up along the fibres of the masseter and would be felt almost along the whole course of the masseter muscle, and it did not seem

altogether unlikely that it might have been a gaseous condition in that particular case. The case was a very remarkable one, and he thought he might certainly say it was not one of hysteria, as the woman was a very common-sense, matter-of-fact person, in whom hysteria was not very likely to occur.

Mr. J. G. TURNER brought forward the subsequent history of a patient of Mr. Colyer's with large alveolar sarcoma and congenital nevus of the face, which had been before the Society thirteen months ago, and which he had promised to mention again after he had operated. At the time he said that he thought the whole thing was due to dirty teeth. The whole of the gums, both upper and lower, where they were not sarcomatous were greatly inflamed, and there was a large amount of inflammatory hypertrophy. He operated just over a year ago, and had now brought the patient up so that the members might see her. The growth was the product entirely of dirty teeth, tartar, and pyorrhœa, and was a spindle-celled sarcoma. He exhibited a carcinoma starting from around a molar tooth which was in the same condition, surrounded by tartar with some suppuration and plenty of dirt and debris. These cases showed that a carcinoma or sarcoma could start from teeth which were subject to pyorrhœa or tartar, or both. The sarcoma apparently was cured. Unfortunately, the carcinomatous case, although showing no recurrence *in situ*, showed recurrence in the glands; and a carcinomatous growth of the tongue, the jaw, or the floor of the mouth, which did not show great fungation, but apparently was a small thing, was something to make one suspicious that the glands were either already enlarged or at least infected. He had seen that occur with growth on the tongue no larger than a threepenny-bit, and a growth on the floor of the mouth no larger than a shilling. The same thing occurred in chimney sweeps' cancer, where there might be large masses of growth in the glands of the groin and no discoverable lesion on the scrotum.

Mr. W. H. DOLAMORE then read a paper contributed by Mr. C. S. TONES and himself upon "Some Observations on the Motions of the Mandible." It is published on page 481. This was followed by a discussion which will be given in our next issue.

Dental News.

NATIONAL DENTAL HOSPITAL.

The Distribution of Medals and Certificates took place on the 17th ult., immediately preceding the business of the Students' Society, and there was a good attendance.

The DEAN said :—Gentlemen, I feel that a few words are necessary in explanation of our meeting this evening. The President of your Society has on a former occasion expressed in well chosen words the great loss which we all sustained at the commencement of the year, and therefore I need only say now that under the circumstances it was felt that anything like a public function in connection with our Annual Distribution of Prizes would be out of place. Especially was this the case when we remembered that the President of our Hospital is H.R.H. the Duke of Cornwall and York. So that perhaps no further apology will be demanded of me for undertaking as the Dean, and representing my Colleagues on the Staff, the duty of handing to our successful Students of the last Session the Medals and Certificates which were awarded as a recognition of their industry and good work. But although this distribution is shorn of the distinction which is generally associated with the presence of some eminent man or gracious lady from whose hands the School rewards are usually received, I will venture to make a few remarks to soften, if possible, the deficiency from which we suffer this evening. Our School, as you know, is not one of the large ones, but yet I venture to suggest that perhaps this very feature proves attractive to some. As far as our home is concerned, I think no fault can be found with it, and only last month one was gratified to receive from a gentleman in the North (whose pupil has now become a student here) a letter in which he said that he had visited the Hospitals all over the country and many places abroad, and after seeing the manner in which ours was conducted was satisfied it was superior to any he had seen. This testimony from a stranger may well encourage our friends to believe that the student who joins our School may be confident that every opportunity will be afforded him to become efficient in his work, to face

the College examiners with as much equanimity as is possible under those trying circumstances, and afterwards to receive his private patients in practice with confidence. We do not believe in anything like a "battle of the Schools," a friendly rivalry is perhaps beneficial for all, and although, as I have said, ours is a comparatively small School we can claim to give as well as to receive that stimulus which comes from a healthy competition. Without wishing to make any of you blush or feel uncomfortable, I may honestly say that the students who now sign our obligation book leave little to be desired in their social status, their intellectual capacity, or their good behaviour. And our results at examinations are, I believe, at the least quite as good as those obtained at other Schools. As far as I am able to judge, the gentlemen who come here are distinguished by the desire to obtain their diplomas with as little delay as possible, and I have often thought that our proportion of those who are sometimes termed "wasters" must be smaller than is met with elsewhere. And if occasionally the Staff feel inclined to suspect that not enough patients are attended to, I believe we are not worse off in that respect than are other similar Institutions. But, gentlemen, we wish to excel, and I confidently leave it to you to do all you can to maintain the reputation which this Hospital has held for so many years in connection with the relief, in such large numbers, of the suffering poor.

There are now very many of our past students successfully practising their profession, and if there are failures I do not hear of them. The outlook for the dental surgeon who has made himself master of his profession is, I think, brighter than ever, and as time goes on there seems reason to believe that an honourable competence is within the reach of all of you, and what may be termed a lucrative practice for many. I do not stop to give you my reasons for so thinking; this is not the moment to do so. But I will venture to add a few words to the newly qualified. There can be little doubt that the possession of a diploma is not the end of studentship, but that it only marks a stage towards success. The holding of such a post as the House Surgeonship, and the taking of a position as assistant will stand the future practitioner in good stead and help him to gain confidence and acquire necessary experience. And as soon as it is possible he should put his name upon the Dentists' Register (an obligation too often deferred) and in the second place he should seek admission to

one of the professional bodies, such as the British Dental Association and the Odontological Society of Great Britain.

Finally, gentlemen, in bringing these few remarks to a conclusion, I will ask you to join with me in expressing the pleasure we feel in extending a brotherly hand of greeting to the six kinsmen from Australasia who now sit with us. We have pleasurable recollections of several of their countrymen, and we hope that when our present visitors, too, find it necessary to leave us, they may reciprocate the feeling of pleasure in having met, and keep us and our School in sympathetic remembrance.

The following was the list of awards :—

Dental Anatomy—Medal, E. G. Simmonds. Certificates, P. G. Pavitt, B. G. W. Clench.

Dental Mechanics—Theoretical, Medal, T. Stephenson. Certificates, S. Wheeler, G. W. Priestley. Practical, Medal, G. W. Priestley. Certificates, T. Stephenson, C. J. Tarry.

Dental Metallurgy—Medal, F. A. Howorth. Certificates, E. H. Tice, W. James.

Dental Surgery—Medal, B. G. W. Clench. Certificates, C. W. Edy, T. Stephenson.

Operative Dental Surgery—Medal, F. Rose. Certificate, S. Wheeler.

Dental Materia Medica—Medal, N. Black. Certificates, E. G. Simmonds, T. Stephenson.

Ash Prize—C. J. Tarry.

Rymer Gold Medal—T. Stephenson.

CLAIM BY A DENTIST.

At Gloucester County Court, A. J. Norman, dental surgeon, sued Mrs. Perry. This was a part-heard case twice adjourned (once for want of time).

Mr. Neville Ricketts for the plaintiff, and Mr. Allen Armitage for the defendant.

The claim was for a set of teeth supplied. The defendant's solicitor now admitted that the teeth fitted properly, and his Honour gave judgment for the amount claimed, and gave plaintiff the costs of one hearing. Mr. Armitage applied on behalf of the defendant for the costs of the other hearing, which his Honour refused.

DEATH UNDER CHLOROFORM.

Elizabeth Hanvey, domestic servant, went to Workington to have some teeth extracted by Mr. Bosco Askew. Her stepmother accompanied her. Dr. Highet administered the chloroform by the "Glasgow method" of inhalation. She died a few moments after. She was somewhat anæmic. The police telegraphed to the father at once. Mr. Gordon Falcon, coroner for West Cumberland, held the inquest in Mr. Askew's drawing-room at No. 11, Curwen Street.

Samuel Hanvey, road labourer, Newtown, Aspatria, identified the body as that of his daughter Elizabeth. She was 29 years old, and unmarried. She was a domestic servant, and came home on Saturday for a week's holiday, intending to go back next Saturday. The letters to Mr. Askew were in her handwriting. The last time he saw her alive was on Monday night. She had always been able to remain at work, she had never stayed at home through illness. She came to Workington with his wife. About ten or eleven years ago she had some teeth extracted, and said she had chloroform then.

Mrs. Ruth Hanvey, stepmother to deceased, said the girl came home for a holiday, not because she was ill. At Mr. Askew's in the morning she said: "Isn't he a nice man. I always said I would come back here." She had felt rather sick in the morning. All she ever complained about was feeling "rather weak and tired." Witness was not in the room when the operation was performed. They left Aspatria by the train leaving about ten o'clock.

Dr. Highet: Did you walk fast?—Yes, middling. She walked rather faster than I liked. I am not a good walker.

Hugh de Bosco Askew, registered dentist, 11, Curwen Street, said he had had Miss Hanvey about nine or ten years before. He believed she had chloroform on that occasion. She wrote on the 9th May, asking for an appointment for Tuesday morning, adding: "You did my teeth a few years since, and I am going home on Saturday for a week's holiday." In another letter following she wrote: "Yes, I must have chloroform as my teeth are so bad. I leave Aspatria at ten o'clock.

The Coroner: And on the strength of that you got the doctor to come?—Yes.

Witness (continuing) said Dr. Highet came and administered chloroform. He had extracted some teeth and roots

occupying one minute at the outside. They saw that something was happening, and he stopped.

John Highet, M.D., and medical officer of health for the Borough of Workington, said he went by appointment to Mr. Askew's at eleven o'clock to administer chloroform. He gave it in his usual way—on a towel, the "Glasgow method." He gave her very little—a couple of drachms at the most. It was inhaled not taken. Witness said "I think she'll do," and Mr. Askew commenced. She began to struggle, and he (witness) said "She's not sufficiently under. We'd better give her a little more." Just as he spoke she suddenly lost colour, and became intensely pallid. Her breathing stopped. Witness gave her a stimulant and resorted to artificial respiration for perhaps half an hour. She died at once in her chair, of heart failure. She was not fully narcotised when she had the attack. He was going to give her more if she had not suddenly collapsed. She would be ordered to take no food that morning, and the hurrying up from the station, and natural weakness, would account for it.

The Foreman: Did you consider her heart strong enough to stand the chloroform, doctor?—I had no reason to believe she was not. I did not examine it. If I had, she would probably have been more nervous.

The Coroner said this was a very sad case. They were very sorry for the girl and her parents. One great satisfaction was in knowing that every care would be taken of her at Mr. Askew's. Mr. Askew was an experienced dentist, and he did not administer the chloroform himself. She wrote asking for it, and he got Dr. Highet to come. The fact that Dr. Highet was present was sufficient guarantee that every care and skill that medical science could offer would be forthcoming. Their verdict would no doubt be that Elizabeth Hanvey died under chloroform, which was properly administered for a lawful purpose.

The jury returned a verdict accordingly.

CHARGE AGAINST A DENTIST.

Before Mr. Bros, sitting at Clerkenwell, John Armitage, 53, a dental surgeon, of Raydon-street, Highgate, was charged with throwing corrosive fluid with intent to do grievous bodily harm to Percy King, his stepson.

Detective Wright said he arrested prisoner at his residence charging him with committing the offence. Prisoner explained, "Yes; it was spirits of salts, potash, and added

water. I use it for keeping glasses clean. Some boys threw a stone at the door and broke a panel. I told them if they did not go away I would give them something. I saw a face at the door and threw the contents of this glass (produced). I did not know it was Percy, or I should not have done it."

Dr. McDonald, who is attending to the boy, who was unable to appear, said one of his eyes was much inflamed, and there was great pain. The injury might have been caused by the fluid described by the prisoner, which would be of a corrosive character.

Prisoner's wife said he was a very good step-father to her son.

Remanded on bail.

SUIT AGAINST A DENTIST.

Henry Forster, an elderly man, sued C. Davis in the District Court, before Judge Murray, to recover £200 for alleged negligence in making a set of false teeth. Plaintiff was a hotel-keeper at the New Livingstone-road, Petersham, New South Wales, and defendant carrying on business in Toothill-street, Petersham.

Plaintiff's case was that the teeth he got from the defendant were useless to him, and caused a cancerous growth in his jaw, for the removal of which he had to undergo an operation in the hospital.

The defendant pleaded not guilty.

The case stands part heard.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
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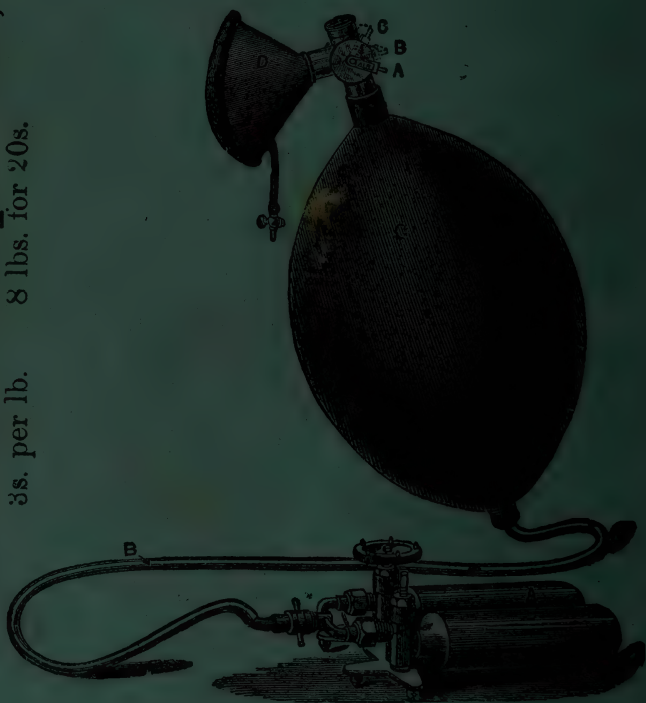
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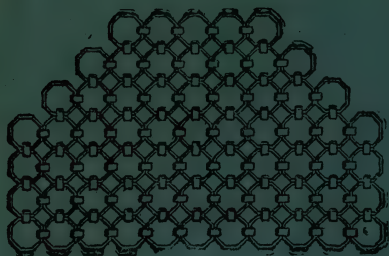
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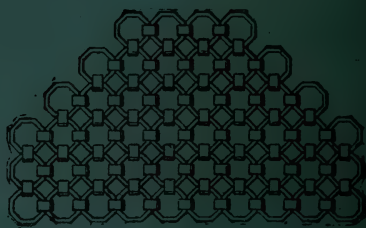
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The wording of all advertisements are subject to the Publishers' approval. No objectionable advertisements are allowed to appear. All advertisements are accepted with this distinct condition, and the publishers have the right of refusing any advertisement not meeting with their approval, and advertisers will understand that such refusal to admit the wording of an advertisement, or alteration of an existing advertisement will not cancel a contract or order for an advertisement.

This Journal is published **TWICE A MONTH**, on the 1st and 15th.

Advertisements should reach the office by the 10th and 25th.

N.B.—This Journal, having by far the largest circulation of any English Dental Periodical, is the best medium for all Advertisements, and its Edges being cut throughout, all the Advertisements must be seen.

The Journal is supplied direct from the Office, to any part of the world, post free, for 14s. per annum, 7s. Six Months, 3s. 6d. per Quarter, payable in advance.

No Subscription can be discontinued before the end of any one year.

A month's notice should be given in writing by subscribers wishing to terminate their subscription before the end of the year. All subscribers not giving such notice will be considered subscribers for the following year.

Cheques, Post Office Orders, or Postal Orders should be crossed and made payable to the order of G. E. SKLIROS, 289 & 291, REGENT STREET, W.

NOTICE TO ADVERTISERS. Letters for advertisements appearing in our Journal are allowed to be addressed, free of charge, at our office, c/o us, for yearly Subscribers only. The Subscriber's name must always be given to us, in confidence. All advertisements must be prepaid to insure insertion.

SITUATIONS WANTED.

- As Operating Assistant, qualified. Would help in workroom. Permanency desired. "Dens," 10, Morrab Road, Penzance.
- As Junior Assistant (Mechanical). Over four years' experience in good country practice. Can extract and take impressions. Good vulcanite and plate worker. London preferred. Giles, Carmarthen.
- As skilful Operating and Mechanical Assistant. Managership preferred. "Dental," c/o Segg & Co., 289, Regent Street, W.
- By Surgical and Mechanical. 15 years' experience. 7 years' last employer. Whole or part time. "J.," 133, Praed Street.
- L.D.S. Eng., 1899, requires Assistantship with view to Partnership. Testimonials good. "G.," 200, Wandsworth Bridge Road, Fulham.
- By good Mechanic. Assist a little in surgery. Moderate salary. First class references. "Dental," "Aberlour," Ashburton Road, Croydon.
- Dentists' Assistant requires situation, mechanics and assist if required in Surgery. "Mechanic," c/o Messrs. Segg & Co., Regent Street, W.
- Mechanical Assistant, 27, married, requires situation, permanent. Good plate and vulcanite worker. Can assist in surgery. 10 years' experience. References good. Salary 40/-. W. E. Packer, 10, Chaworth Road, West Bridgeford, Nottingham.
- L.D.S., first class Operator, gold filler, crown worker, desires West End engagement. "B. A.," c/o Segg & Co., Regent Street.
- Position required by a Dental Assistant used to first class work. Experience desired in surgery. "Dental," 14, Vernon Street, Leeds.
- By a qualified gentleman, disengaged for the summer months. Take charge of Practice. South coast preferred. Address "Molar," c/o Segg & Co., Publishers, Regent Street, W.
- Surgical and Mechanical, registered, requires re-engagement. Good Operator, Long references. "Dental," 56, Haslemere Road, Forest Gate, London.
- As Improver. Gentleman, aged 20, just passed preliminary. Vulcanite, &c. Board, &c., in r. turn. "Dent.," 31, Craven Street, Strand, W.C.
- By Dental Assistant. Good experience. Moderate salary. "E. J.," 167, York Road, London, N.
- As Assistant. Age 29. 12 years' experience. Part or full time. Moderate salary. "Dental," 303, Ladbroke Grove, W.

GOOD Junior Mechanic required at once (London). Not less than five years' experience. Write stating age and salary required, with copy of testimonials to "Junior," c/o Segg & Co., 289, Regent St., W.

QUALIFIED Operator required with view to Partnership. Capital not essential to suitable man. Address "Qualified," c/o Segg & Co., 289 & 291, Regent Street, W.

WANTED good Operator and Mechanic, able to take charge of branch practices at times. Must have good references. Permanency to good all-round man. Salary £2 and commission. Apply to "Leo," c/o J. P. Segg & Co., 239, Regent Street, London, W.

FIRST CLASS Operator (L.D.S.) wanted as Assistant for Johannesburg, South Africa. Salary £30 per month to start. 3 years' agreement. Second class passage. Character and ability must bear strictest investigation. Copy testimonials and full particulars, age, height, etc., enclosing photograph (which will be returned) to "Box," c/o Claudius Ash & Sons, Ltd., Broad Street, Golden Square, London, W.

TUITION. Mechanical Dentistry taught in all its branches including crown, bridge, and continuous gum, by Arthur J. Watts, late Tutor The Dental Hospital, London, (Mechanical department). Pupils taken for long or short periods, resident or otherwise. 187, Camden Road, London

WANTED good all round Assistant able to take charge of branch. State salary required, with reference. Apply Kearsley, 43, George Street, Plymouth.

ASSISTANT required in a first class old established Practice in the West of England. Arrangements may be made for acquiring the practice. Must possess the highest qualifications. Address "American," c/o C. Ash & Sons, Ltd., Broad Street, Golden Square, London, W.

WANTED good all-round Assistant to manage Practice. Salary £4 4s. Apply Robinson, 228, Edgware Road, W.

£250 will purchase an established non-advertising Practice improving town 40 miles from London. Fine opportunity for young L.D.S. Good house, rent £60. "Genuine," c/o Messrs. Segg, & Co., Regent Street, W.

FOR early Disposal. Good non-advertising Practice, central. Good fees. Abounding country for sporting man. For particulars apply "Lestier," c/o Messrs. Bailliere, Tindall & Cox, Henrietta Street, Strand, London.

DENTAL Practice for Sale in a thriving Lancashire town, situate in centre of town. Rent and taxes £30. Death the reason for disposal. Apply for full particulars "H. J.," c/o Segg & Co., 239, Regent Street, W.

WANTED at once a good Mechanical Assistant well up in gold and rubber work. Apply by letter with terms and testimonials to Dr. John, c/o Lemale & Co., 53, Harnmarket.

LONDON. For Disposal an old-established Practice in central position. Retiring owing to ill-health, the only reason for selling. Good fees. Returns for last four years over £1000. Price £900. Introduction if desired. "Alpha," 13, Thayer Street, Manchester Square, W.

PARTNERSHIP with succession to Practice returning over £500 and steadily increasing. Seaside, South coast. Part cash and balance by arrangement. "Dens," c/o J. P. Segg & Co., Regent Street, London, W.

GENUINE Dental Practice for Sale. Well established. Expenses light. Large convenient premises. No resident opposition. Last three years average £800. Price one years' purchase for cash. By instalments £850, balance at 5 per cent. interest. "Country," c/o Messrs. Segg & Co., 289, Regent Street, W.

FOR DISPOSAL. Old-established Suburban Practice, non-advertising. Apply "Veritas," c/o Segg & Co., 289, Regent Street, London, W.

WEST LONDON Suburban Practice for Disposal. No reasonable offer refused, "F.," c/o Messrs. Segg & Co., 289, Regent Street, W.

MECHANICAL Work for the Profession. All branches. Reliable workmanship, perfect fit, best materials, moderate charges and punctuality. Write for terms, London Mechanical Dental Laboratory, 46, Bolsover Street, London. A. Williams, Manager.

DENTAL Operating Room to Let in best part of Harley Street. Furnished or unfurnished. Electric light. Man servant. House newly decorated. Could also let a bedroom, and a sitting-room if a bachelor. Apply Dr. Abbot Anderson, 36, Harley Street, W.

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TO GENTLEMEN wishing to commence practice without any preliminary expense. Furnished consulting rooms to let near Cavendish Square, on very moderate terms. Rent can be paid or partly paid by giving assistance with patients when required. Please send full particulars to "F. J.," c/o J. P. Segg & Co., 289, Regent Street, W.

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MECHANICAL Work for the Profession. First-class workmanship, most moderate charges. Punctuality may be depended on. D. V. Ryding, 87, Loftus Road, Shepherd's Bush, W. Branch, Mayes, 35, Dean Street, Soho, W.

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Manufacturer of Dental Materials.

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NICKEL PLATED & BRITANNIA METAL TRAYS.

PINK AND BROWN MODELLING WAX.

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Chemically pure specially prepared for dental purposes.

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Samples and quotations of these and other goods to all dentists on the Register on application per post-card.

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The American Dental Manufacturing Co., **16, POLAND STREET, LONDON, W.**

Control the largest Stock of
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Only the Best Rubbers of English and American Manufacture
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Practitioners seeking partners or wishing to dispose of their Practices
are invited to consult Messrs. ADAMS & PARKES who have several clients
on their books. Terms post free on application.

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GILT SPRINGS, 4s. per doz. pairs; GILT SWIVELS, 4s. per doz. sets.
Liberal Discount to large Buyers. A large Assortment of GERMAN
SILVER IMPRESSION TRAYS. First Class Mechanical Work Executed.
Price List on application.

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Mineral Teeth and

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How to Give Gas. A Practical and

Concise Work for the Busy Practitioner. By T. E. CONSTANT,
M.R.C.S., L.R.C.P., L.D.S., Eng., Late House Surgeon, Dental Hos-
pital of London. Well Illustrated. Price 1/6.

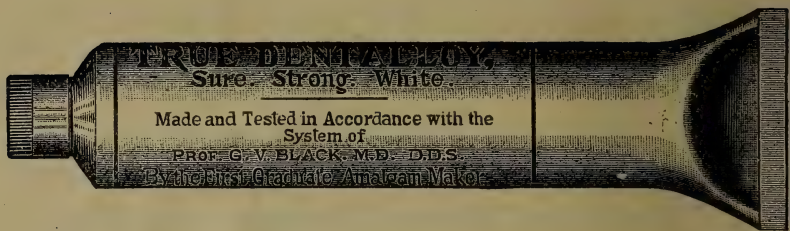
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TRUE DENTALLOY.

SURE.

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WHITE.



A Silver-Tin Alloy.

It has been pretty well established that the most useful alloys for dental amalgams—speaking generally—are those which are known as silver-tin, in which the percentage of silver exceeds that of the tin and any other metals. “True Dentalloy” is of this class. It is made after the methods of Dr. G. V. Black, which means that every step of the work of compounding, melting, cutting, and annealing is conducted carefully. It means also that the resulting alloy, because of the care with which it is made, can be depended upon to work the same way right along, provided the manipulation is uniform.

A Pointer.

If you want the best results possible, the printed directions which accompany each package should be followed. Those directions were formulated to afford a reliable guide to the most satisfactory use of the Alloy. It has been definitely established that the character of an amalgam filling varies with the proportion of mercury in the mass. A filling with 10 or 20 per cent. more mercury than is required will not be as durable as one in which just the right quantity is used. It is therefore important that the right proportions be known and be observed in mixing. The point is, that no matter how perfect the alloy, something depends on the dentist.

Some Properties.

“True Dentalloy” is made of pure metals. It is fine-cut—powdery—because this state is believed to favour ready amalgamation. Combined with the proper quantity of mercury it makes an amalgam which gives a strong breaking, crushing, and “flow” test; which is white in colour, and which is uniform. It does not contract; it expands slightly during the early stages of setting, and thereafter maintains its form and size. It sets in about fifteen minutes. It retains its properties indefinitely because it is properly annealed before being put up for sale.

An Economical Package.

Put up only in 1-oz. collapsible tubes like those used for artist's colours, with screw-caps. It is convenient to handle, prevents waste, and preserves the contents.

Price, in any quantity per oz.dols. 1.50

The S. S. White Dental Manufacturing Company,
Philadelphia, New York, Boston, Chicago, Brooklyn, Atlanta, Rochester
Berlin (Ger.), Buenos Aires (R.A.) St. Petersburg, Toronto.

List of Prices for Teeth in Sterling.

Plain, Rubber, Plate and				s.	d.
Long Pins, Celluloid,	Single	...	... each	0	7
Countersunk Pins, Con-	Per 100	...	...	52	0
tinuous Gum, Gum,	"	in lots of 50	...	50	0
Sectional, Rubber and	"	"	1000	48	0
Plate	"	"	2500	46	0

Hand-made and	Single	...	... each	1	0
Smokers	Per 100	...	...	91	0
	"	in lots of 500	...	84	0

ogan Crowns, 1 Pin	Single	...	... each	2	7
	In lots of 50	...	...	2	5
	"	100...	...	2	4
	"	500...	...	2	2

Diatorics	Single	...	... each	0	3
	Per 100	...	...	20	0
	"	in lots of 500...	...	18	0
	"	" 1000...	...	16	0
	"	" 2500...	...	15	0

No lower prices than the above maximum quantity rates for any larger quantity.

*Discount for Spot Cash in lots of £5 and over,
5 per cent.*

These prices are to be uniform at all the Dental Depots in Great Britain.

March 1st, 1901.

The S. S. White Dental Manufacturing Company,
Philadelphia, New York, Boston, Chicago, Brooklyn, Atlanta, Rochester,
Berlin (Ger.), Buenos Aires (R.A.) St. Petersburg, Toronto.

THE MIDLAND
Dental Manufacturing Co.,
1, NEEDLESS ALLEY,
 Telegrams—
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AGENTS FOR
EXCELSIOR TEETH.

Recent great improvements have been made in these teeth, and for strength of body, natural appearance, and shades, they are unsurpassed; they are thoroughly reliable.

Send for Sample Selection.

PRICE.

						Per 1,000
		Per 100				
Pin Teeth	...	...	38s.	...	...	£17 10s
Diatorics	...	...	10s.	...	...	£4 10s.

HARVARD UNIVERSITY,
DENTAL DEPARTMENT,
BOSTON, MASS., U.S.A.

The Sessions of this School begin the last Thursday in September, and end the last Wednesday in June, making nine months of practically continuous work in each year.

General Anatomy with Dissections, Physiology, General Chemistry, Hygiene, Histology and Embryology, and Bacteriology are the Studies of the first year. Of the second year they are Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work and Metallurgy, Materia Medica and Therapeutics, Oral Anatomy, and Physiology and Bacteriology, Dental Pathology, and Oral Surgery. Of the third year, Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work and Metallurgy, Neurology, and Surgical Pathology and Surgery. The Student can also attend gratuitously all the lectures in any other department of the University.

The Infirmary furnishes abundant facilities averaging 8,000 operations, of which a large proportion consists of filling teeth, every year.

The University degree, D.M.D. (Dentariæ Medicinæ Doctor) is conferred on all who fulfil the requirements.

For the first year a Student is a member of the school, the fee is 200 dols or the second year 150 dols., for the third year 150 dols., and for any subsequent year 50 dols.

For further information and Catalogues, address

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 283, DARTMOUTH STREET,
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Price 6.00 dols. per pound.

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Pink Rubber, Light Shade, per pound.....dols.	5.00
Pink " Medium Light Shade, per pound... "	5.00
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In 5 pound lots, per pound.....dols.	4.50
In 10 " " " " " "	4.25

Samson Rubber, per lb.dols.	2.75	Maroon Rubber per lb. dols.	2.75
In 5 pound lots, per pound.....dols.	2.50		
In 10 " " " " " "	2.25		
In 25 " " " " " "	2.00		
In 50 " " " " " "	1.80		

No. 1 Rubber, per pound.....dols.	2.25	No. 2 Rubber, per pound,....dols	2.25
Mottled Rubber, " " " " " "	2.25	Jet Black Rubber " " " "	2.25
Pure Black " " " " " "	2.25	Para Black " " " "	2.25
Gutta Percha, Base Plate, pink or white, per pound.....dols.	2.25		
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In 10 " " " " " "	1.90		
In 20 " " " " " "	1.80		
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Doherty's New Idea Dental Rubber, per lb. d. 1.75
In 5 pound lots, per pound...dols. 1.60

Red Vulcanizable G. Percha, per lb. d.	3.09	Flexible or Palate Rubber d.	3.00
No. 1 Weighted Rubber, per lb. d.	3.50	No. 2 Weighted Rubber, per lb. d.	3.50
Black " " " " " "	3.50	20 Minute Rubber	2.50
My Rubber Dam is put up in rolls, 6 inch wide by 18 feet long, one square yard, and 6 inch long by 9 feet long, one half square yard.			
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EUGENE DOHERTY.

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PIN TEETH

PIN TEETH

25/-

Per 100.

PIN TEETH

A Sample Set of Six PIN TEETH for 1/6.

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Dental Manufacturers,

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Branch Depot,

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TAL LABORATORY. By HARRY ROSE, L.D.S. Eng., Lecturer on
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"This volume is a further valuable contribution to the literature of
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"This is an essentially practical work"—*British & Colonial Druggist.*

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Defective Personal Hygiene as it

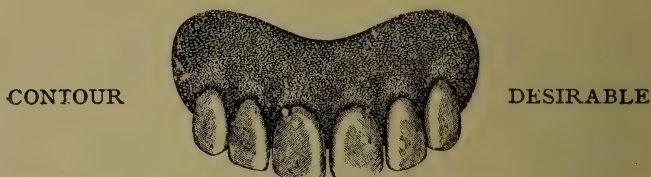
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No. 2a PURPLE TINT Light.		No. 3a FLORID TINT Light.

No. 1, 3s., Nos. 2, 2a, 3, & 3a, 4s. per oz.

The nearest imitation of the gums ever produced in rubber it is manipulated exactly like ordinary pink rubber, admits of spaces being left between teeth for natural effect and can be cut and repolished at will. Solarization optional.



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The Pink Rubbers are unsurpassed in the market. All are of EQUAL quality, differing only in colour:

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| A. Pink (unequalled at the price) | 18/- | per lb. |
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SOLD IN TWO OUNCE PACKETS.

he Strongest Base Rubber (ORANGE) 16/- per lb.

JAMES WALKER & CO,
MANUFACTURERS, PROPRIETORS & PATENTEES
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SCIENTIFIC

GOLD ALLOY.

The Newest Departure in Amalgams.

		Formula.	per oz.	per $\frac{1}{2}$ oz.
No. 1 or "General"	Au. Ag. Sn.	25/-	
No. 2 or "Gray White"	Au. Ag. Sn. Zn.	25/-	13/-
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No. 4 or "Facing"	Au. Ag. Sn. Zn.	25/-	13/-
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NOTE.—Absolute purity of all metals employed is the secret of a perfect amalgam that shall maintain and retain all requirements of a filling and keep its colour. With these "Scientific Alloys" no expense has been spared to obtain purity in its highest chemical sense, and the results obtained will be found to warrant the outlay, great as it is in comparison with ordinary so called "Fine" metals hitherto in use.

Many dealers and even refiners are unaware of the distinction between "1000 fine gold or silver" and "chemically pure gold or silver and other metals" which may be ascertained by reference to the world-known Messrs. Johnson, Matthey & Co., Hatton Garden, London, the Government Assayers. "Fine gold" is usually about 999.05, and "chemically pure" gold 999.96 in 1000.00, when all trace of impurity is practically lost.

It may be explained that absolute chemical purity of metals is impossible to ascertain, but we guarantee all the metals we use to be of the highest purity possible. 1000 Fine gold or silver—usually called pure—is never chemically pure—contains lead, iron, arsenic, antimony, palladium or cadmium, &c., of about $9\frac{1}{2}$ parts in every 10,000—sufficient to spoil the best of fillings—whilst those which we use have, if any at all, but $\frac{1}{2}$ of one part in every 10,000, i.e., one-nineteenth part of the ordinary impurities, found in "1000 fine" called metals, which then become untraceable, hence the advantage to our alloys.

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==EXTRACT==

FROM THE

General Report of the Judges on Awards of Group
XXIV.

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No. 4a—Dark Yellowish Grey, No. 5—Light Grey,
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Price per Packet, containing 30 grammes powder and 4 small bottles fluid **7s. 6d.**

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A mahogany box, containing 6 different colours ea. 30 grammes and 24 small bottles fluid, 2 spatulas and a glass slab for mixing complete, **45s.**

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British Journal of Dental Science

No. 802. LONDON, JUNE 15, 1901. Vol. XLIV

DRUGS IN RELATION TO DENTISTRY.*

By Mr. F. A. HOWORTH.

(Continued from page 501.)

A useful mouth-wash containing Thymol may be made from

R. Thymol	...	gr. iii.
Acid Benzoic	...	gr. 45
Tr. Eucalypti	...	℥ iv.
Alcohol ad	...	℥ iii.
Ol. Menth. Pip.	...	m. xii.

One teaspoonful to a wine glassful of water.

For those who smoke or are troubled with foetid breath a few drops of the following used on a soft tooth brush will be found of great value.

R. Thymol	...	gr. xii.
Ol. Eucalypti	...	m. xii.
Ol. Menth. Pip.	...	m. xii.
Ol. Limonis	...	m. xii.
Chloroform	...	℥ i.
Glycerine	...	℥ iss.
Sp. Rectificat	...	ad ℥ iii.

* Read before the Students' Society, National Dental Hospital.

There are numerous proprietary articles sold under the fancy names of Eugol, Listerine, Euthymol, &c., all containing Thymol and Boric Acid, and being somewhat similar in composition.

Eucalyptus Oil is an excellent antiseptic, pain obtundent and deodorizer. It may be used inconjunction with Iodoform in treatment of dead teeth.

In addition to the Essential Oils I have mentioned, the following are used principally as flavouring agents in dentifrices. For Tooth Powders, one or two drops may be used to the ounce of powder.

These oils are Oil of Peppermint, Otto of Rose, Oil of Rose Geranium, Oil of Wintergreen and Oil of Cassia.

Eucaïn differs entirely from Cocain in that it is not an alkaloid obtained from the leaves of the Coca plant, but is manufactured synthetically in the chemist's laboratory.

Two distinct substances are known under the name of Eucain, viz., Alpha-Eucain and Beta-Eucain, the former being more frequently used in dental operations. To this I shall refer later.

Formaldehyde, also known as Formol or Formalin is a 40 per cent. aqueous solution of Formic Aldehyde. It is a colourless, volatile liquid with a pungent odour, possessing non-corrosive and strong antiseptic properties. It is a powerful disinfectant, and is superior even to sublimate. Being very diffusible and acting instantly as a deodoriser it is well worth a trial in the treatment of dead teeth.

Gutta Percha Stopping is made by dissolving pure gutta percha in five times its weight of chloroform and allowing to deposit. The clear solution is poured on Zinc Oxide (double quantity of gutta percha taken) made into a paste and finally spread into sheets which are allowed to dry.

Hamamelis Virginica or *Witch Hazel* is used in the preparation of a distilled extract which is very efficacious in

arresting hæmorrhage after tooth extraction. It may be used with an equal part of water as a mouth wash for this purpose, or by plugging the cavity with cotton wool soaked with the liquid. It is non-poisonous, and has an agreeable and refreshing odour. Similar preparations are made from the Witch Hazel, and are sold under the names of Hazeline and Pond's Extract.

Iodine. Of the preparations of Iodine used in dental surgery those most frequently employed are the Tincture and Liniment, which latter is now called "Strong Solution of Iodine." The Tincture is made by dissolving Iodine and Iodide of Potassium in water and then adding spirits of wine.

The strong solution is four and a half times the strength of the tincture. Both of these preparations are most useful for allaying pain and inflammation. Their use in conjunction with Tincture of Aconite I have already referred to.

A decolorised tincture is made sometimes by means of Sodium Hyposulphite and sometimes by means of ammonia. As chemical action takes place in the preparation of this decolorised tincture with the formation of Sodium or Ammonium Iodide and other salts, the characteristic action of the Iodine, as free Iodine, is not obtained as in the ordinary tincture and strong solution.

Iodoform existing in the form of a yellowish powder and crystalline scales is a strong antiseptic and disinfectant.

Oil of Eucalyptus, Balsam of Peru and Coumarin, also Tonquin Beans have been used to cover the unpleasant odour of Iodoform.

Five minims of Oil of Geranium to two drachms of the powder answers the purpose best. Iodoform substitutes I will refer to presently.

Iron Perchloride is used as a local styptic, but being somewhat caustic in its action it is preferable to use it in the form of the strong solution.

Mastic Cement for dressings and temporary fillings can be made by dissolving two parts of Mastic in one part of ether.

Sandarac Varnish for temporary stoppings and for coating plaster models, may be made by dissolving three parts of sandarac in two parts of ether, and six parts of absolute alcohol.

Mercuric Chloride or *Corrosive Sublimate* is a strong antiseptic and germicide.

In the treatment of root canals the strength generally used is 1 in 500 of Alcohol.

For dipping instruments or as a wash for the hands of the operator 1 in 2000.

Mercuric Potassium Iodide (formerly known as Iodic Hydrarg), is a highly soluble double salt and is used for the purpose of obtaining in a solution, the powerful antiseptic properties of Mercuric Iodide which is itself practically insoluble.

The strengths employed vary from 1 in 500 to 1 in 5000, according to circumstances. A solution of 1 in 2000 is the strength generally used in the treatment of dead teeth. Tablets or "soloids," as they are called, are made containing $8\frac{1}{2}$ grains in each. One of these dissolved in 40 oz., i.e., a quart of water, will make a solution of 1 in 2000.

Mercuric Iodide is said by many to be preferable to Mercuric Chloride.

Many assert that salts of Mercury when used in the treatment of root canals cause a black discolouration. Oil of Cinnamon is said to cause a yellow discolouration.

Myrrh, Tincture is made from Gum Myrrh and Alcohol in the proportion of 4 ounces in the pint. It is most useful as a mouth wash in all kinds of ulceration and inflammation of the mouth and gums, especially when combined with borax.

The following makes a useful preparation for this condition of the mouth and gums.

R. Glyc. Boracis	...	3i.
Tt. Krameridæ	...	3i.
Eau de Cologne	...	3iii.
Tinct. Myrrh	...	ad 3iii.

One teaspoonful in half a tumblerful of water to be used occasionally.

In writing prescriptions this word "occasionally" is rendered by the idiomatical expression *pro re nata*.

A prescription was once sent by an accoucheur for the usual medicines for a lady after her delivery. The child was dead. In addition there was also a prescription for some sort of embrocation for her breasts; the affected parts to be rubbed with the same *pro re nata*. The compounder knew very well that "pro" was "for," but not being quite satisfied about "re," goes to his dictionary and there finds "res," a thing, then turns to "nata," and there finds "natus a um," "born." Now he thinks he has it right, "for the little thing born," but deeming "little thing" as too familiar, and wishing to show all due respect to his master's patient, wrote on the label "The little infant newly born to be well rubbed with this embrocation."

Naphthol is an antiseptic, germicide and disinfectant. In pulpless teeth a strength of about 1 in 1000, that is about 1 grain in 3ii is usual strength. It is sometimes used after scaling in Pyorrhœa Alveolaris, in the strength of 20 grains in one ounce of water and one ounce of alcohol.

Hydrogen Peroxide is a powerful antiseptic owing to its powerful action as an oxidiser. It is also an excellent hæmostatic in capillary hæmorrhage. There are two strengths in common use, 10 volumes and 20 volumes. It should be kept cool and in a dark place, as deterioration rapidly takes place.

Sodium Peroxide has the same properties as Hydrogen

Peroxide, and when in contact with moisture forms caustic soda and Hydrogen Peroxide.

Ozonic Ether is Ether containing in solution Hydrogen Peroxide of 30 vol. strength with some Alcohol. It is miscible with water and possesses properties similar to Hydrogen Peroxide but is more stable.

Potassium Chlorate is useful as a mouth-wash when the gums are irritable and spongy. It relieves the tenderness and induces a firmness of the gums. About ʒiiss in 6 oz. of water is usual strength for this purpose.

Potassa a Calce in sticks is a powerful caustic, and is useful in removal of polypi of the pulp. The sticks are made by fusing together caustic potash and quicklime, and running into moulds.

Potassium Permanganate is a well-known powerful antiseptic and deoxidiser. It may safely be used in the treatment of Empyema of the Antrum and for foetid ulcerations of the mouth. For these conditions a solution containing from two grains to five grains per quart will be found sufficiently strong. The solution of permanganate of the B. Pharmacopæia is a 1 per cent. solution equivalent to $87\frac{1}{2}$ grains, i.e., about ʒiiss in Oi of distilled water. It rapidly decomposes when in contact with organic bodies, and should not, therefore, be kept in corked bottles.

This solution is an imitation of Condyl's Fluid which is a solution of Manganates and Permanganates of alkalies and other salts.

Piscidia or *Jamaica Dogwood* is the bark of the root of *Piscidia Erythrina* and is used by the natives in the West Indies to catch fish by its intoxicating action.

In America, it is largely employed in the relief of tooth-ache, and as a general sedative. A liquid extract of this drug is made.

Tannin or *Tannic Acid* is a substance obtained from

galls. It is useful in inflammatory and ulcerated conditions of the oral mucous membrane, and as a styptic.

As a mouth wash it can be used in the strength of 6 grains to the ounce of water.

A Glycerin of Tannin is made in the strength of one part of Tannin to 4 parts of glycerin, and this preparation in combination with Tincture of Myrrh and Glycerine of Carbolic Acid has been found effectual in treating Rigg's disease.

The following proportions will be found of service.

R. Glyc. Tannin	...	℥iss.
„ Acid Carbol.		℥vi.
Tinct. Myrrh	...	℥iv.
Aq. ad	...	℥vi.

One tablespoonful to half tumblerful of water to be used frequently as a mouth-wash.

Gallic Acid is an acid obtained from Tannic Acid. It acts as an astringent and styptic. Locally applied it is inferior to Tannic Acid, but as a remote astringent is more powerful.

As an astringent in Alveolar Hæmorrhage ℥i of Gallic Acid with ℥i of each Tinct. Opii and dilute Sulphuric Acid in ℥vi of water is most useful. Two tablespoonfuls should be given every two hours until hæmorrhage is arrested.

Styptic Colloid, used more in general surgery for arresting hæmorrhage, is a saturated solution of Tannic Acid and Gun Cotton in Absolute Alcohol and pure Ether. A little benzoin is sometimes added to give an agreeable odour to the colloid.

Zinc Chloride is useful for obtunding sensitive dentine. In solution (10—20 grs. to ℥i of water) is an efficient substitute for Carbolic Acid in syringing out cysts and offensive pus cavities.

Trichloracetic Acid is an acid possessing powerful antiseptic properties, and is useful in cases of empyema of the antrum in strength of a 1 per cent. or 2 per cent. solution, i.e., about 4½ or 9 grains to ℥i of water.

I have already referred to the uses of Iodoform, and I might here mention a few substitutes which have of late years been brought forward.

Apparently, it has been desirable to discover an antiseptic, which, whilst having equal antiseptic properties to those of Iodoform, should at the same time not possess the persistently unpleasant and penetrating odour of that drug. I doubt whether any one of them has an equal antiseptic power. The name alone of many of them ought to be sufficient for bacteria or micro-organisms.

Airol, Antiseptol, Aristol, Dermatol, Di-iodoform, Eka-Iodoform, Europhen, Iodoformal, Iodoformin, Iodol, Loretin, Losophan, Nosophen, Antinosin, Eudoxin, Orthoform, Sanoform, Sozoiodol.

All of these are more or less intricate organic compounds of Iodine, with the exception of Orthoform and Dermatol, which is Bismuth Subgallate.

It may be mentioned that Iodoform contains about 97 per cent. of Iodine. The above-mentioned substitutes contain that element in considerably less and varying proportions. A slight reference to one or two of these which have been found of value in dental surgery may be of interest.

Airol is useful in the treatment of dead teeth when the pulp cavity is in a moist condition.

Aristol is a reddish-brown powder containing about 46 per cent. of Iodine. It is soluble in CHCl_3 but insoluble in water.

As an antiseptic dressing the following may be used.

R. Aristol	...	gr. 20
Chloroform	...	3 iv.
Ol. Cassiæ	...	3 iv.

Orthoform possesses antiseptic properties, the Hydrochloride being the form most in use. In water it is soluble one in nine. A solution of this strength is commonly used.

I would now like to call your attention to the following drugs.

Antifebrin or Acetanilide (Phenyl Acetamide).

Antipyrin or Phenazonum (Phenyl-Dimethyl-Pyrazolone).

Exalgin (Methyl Acetanilide).

Para-Acetphenetidin).

Resorcin (Metadi-oxybenzolum).

Sulphonal (Diethyl Sulphon-Dimethyl-Methane).

Antifebrin is an antipyretic and anodyne, useful in neuralgia, but must be prescribed cautiously, as it is a depressant. Dose 1 to 4 grains.

Antipyrin is an antipyretic and nerve sedative. Is generally prescribed in 10 grain doses, but should always be administered with care on account of its depressing action.

Exalgin is one of the best remedies in neuralgia and odontalgia in doses of half to one grain twice daily.

Phenacetin is less depressing in its action on the heart, and is given in doses of from 5 to 10 grains in neuralgia.

Sulphonal is useful as a hypnotic in cases of neuralgia. About 15 grains in capsules should be administered two hours before bedtime.

Resorcin is an antiseptic and disinfectant. It is soluble in water, alcohol and ether, and may be found useful for foetid ulcers of gums and mucous membrane.

A ten per cent. solution i.e. about 44 grains to the $\frac{3}{4}$ of water, may be used in the treatment of Pyorrhœa Alveolaris after having previously washed the sockets with Hydrogen Peroxide.

Respecting the drugs used for the production of local anæsthesia, in obtunding sensitive dentine, and in the extraction of the teeth it would not, perhaps, be out of place to mention a few of the drugs which are used for those purposes.

As obtundents of sensitive dentine may be mentioned

Cocaine, Carbolic Acid, Zinc Chloride, Oil of Cloves, Tincture of Aconite, Nitrate of Silver and Creosote.

Cocain Hydrochloride is sometimes effectual. A grain dissolved in a drop or two of water should be applied on cotton wool to the cavity previously dried. It may be used in the form of an ointment of ten per cent. strength which may be made by dissolving 12 grains in a few drops of water and then mixing with $\mathfrak{z}\text{ii}$ of Lanoline.

It is not necessary for one to make any reference as to the application of the other obtundents already mentioned excepting Silver Nitrate. This substance should be limited in its use to back teeth owing to the discolouration it causes.

As regards the local anæsthetics used in tooth extraction, I may mention Cocain, Eucaïn, Ethyl Chloride, Methyl Chloride, Menthol and Anestile.

An injection of Cocain Hydrochloride is generally made of a 10 per cent. strength, i.e., $\frac{3}{4}$ grain in 8 minims, which is sufficient for the extraction of one tooth.

Numerous accidents have occurred through the use of this drug, and a preparation known as *Eucaïn* has attained some prominence. Over Cocaine it certainly possesses some advantages—

The heart's action is not affected, and the anæsthesia is prolonged.

A solution of Alpha-Eucaïn Hydrochloride of 6 per cent. strength should be used as an injection. 3 grains dissolved in 50 minims of water will make a 6 per cent. solution, and about 30 minims is the amount usually injected.

Ethyl Chloride, *Methyl Chloride* are used in form of a spray.

Anestile, which is a proprietary article, is a mixture of equal parts of Ethyl and Methyl Chlorides, and is used in the form of a spray.

Menthol dissolved in Ether in the proportion of $\mathfrak{z}\text{ss}$ to $\mathfrak{z}\text{iv}$,

and applied to the tooth and surrounding gum has been used with success.

Without taxing your patience much longer, Mr. President and gentlemen, I would suggest that during the two years' Hospital curriculum more attention be paid by students in their spare time, if they can find any, to this subject of drugs which affects us more than is generally realised.

At the present time, evidence of having received instruction in *Materia Medica* and *Therapeutics* is required by the Royal College of Surgeons, but no doubt a thorough knowledge of these subjects will, sooner or later, be required by that examining board. Such a requirement would, I think, be a right and proper one.

It behoves us all, but especially as students, to obtain an intimate acquaintance with the drugs we use, so that by their aid we may be able to treat the pathological conditions which are so frequently met with.

As dentists we have a right to prescribe, the same as our medical brethren, provided that the treatment is essential for the alleviation of pathological conditions in Dental Surgery. But how can we prescribe for those conditions if we are not intimately acquainted with drugs?

I must apologise, Mr. President and Gentlemen, for the length of my paper, which though long has not perhaps dealt sufficiently with some of the drugs commonly used. It has been, I fear, nothing more than an epitome of the principal drugs used in Dental Surgery.

In extracting temporary molars, especially loose ones, go well up for them, you often kill two birds with the one stone, so to speak, and get a bicuspid out as well.

THE EVOLUTION OF THE ARTIFICIAL CROWN.*

By J. O. WELLS, D.D.S., Northfield, Minnesota.

The early history of Dentistry is quite obscure, and is therefore a subject upon which very little of a definite nature can be said. There are records, however, of dental services having been rendered many hundred years B.C., and it is a significant fact that among the earliest of these services was that of bridging. Bridge Work then is one of the oldest phases of Dentistry, having been practised long before Crowns were thought of and antedating Plates by even a greater number of years. True the process was crude, consisting simply of filling the space by ligaturing natural teeth to those still in the arch. While the organs thus supplied were absolutely worthless so far as mastication was concerned it cannot be denied that it was a process of bridging, although it accomplished but one object, that of filling the space.

It was not until many hundred years had passed that the artistic and useful were combined in the practice of this phase of Dentistry. Practically Dentistry received its first recognition when the English College of Surgeons created a course of study whereby those desiring might fit themselves for the practice of Dentistry. Prior to this time the dental operations were very simple, consisting mainly of extractions, and were performed by men engaged in other pursuits, as Barbers, Jewellers, and even Blacksmiths. This movement on the part of the English College of Surgeons was taken up by the progressive American and carried to a much farther extent. Colleges of Dentistry were established and equipped with every facility to fit men for the practice of Dentistry. The

* Read before the Minnesota State Dental Society, and published by "The Dental Review."

empirical was succeeded by the scientific, the craft by a profession, the Dentist was placed upon an equality with his medical brother, and so great was the advance made in every department of the profession that America was justly called the cradle of modern Dentistry.

In tracing the evolution of the Artificial Crown, then, we come home to our own country and get our data from our people. An examination of the early literature reveals the fact that the Pivot Crown was the pioneer in this class of work. The materials used in the crowning operations prior to the introduction of porcelain were ivory and natural teeth for the crown and compressed wood for the post. When ivory was used for this purpose the crown was carved to suit the case ; this required considerable skill and accounts for the popularity of the natural tooth, usually the crown of a human tooth.

When a tooth was selected for a case, regard being taken as to size, shape and colour, the root was removed from the selected tooth and the crown wrapped in a cloth and boiled for half an hour, the pulp chamber was then reamed to receive the post. The root to receive the crown was cut to the margin of the gums with files, the canal reamed to receive the post which was made of compressed wood, and the artificial Crown adjusted. You will note at this time in the history of crown work the canal received no treatment other than reaming, the apical foramen was not even filled. As a result of this abscess was of frequent occurrence, which did a great deal to discourage the use of Crowns. In 1861 Dr. James Taylor, in deploring the fact that Pivot Crowns were much less frequently used than formerly, ascribed as the reason the recent improvement in Mechanical Dentistry and the frequency of abscess. When we read the methods the Dentist used at this early date, we are inclined to think that abscess was the prime factor in discouraging the use of the Crown.

This led to the location of the trouble and an attempt to remove the cause. About this time we begin to see such articles in the journals as "A Method of Introducing Gold Foil into the apical Foramen." Numerous substances were used in canals—wood, cotton, copper wire, paraffin, and cements are a few. There were about as many methods and materials as there were operators : as a matter of fact I think the methods are still numerous ; however, after much study and experimenting the most approved method seems to be, when the canal is ready to fill, moisten with Eucalyptus, pump full of Chloro-percha, then force into the canal a gutta-percha point moistened in Eucalyptus. This practice greatly reduced abscess. When the parts are accessible and we can be sure of our work, it ought to reduce abscess to a very small per cent. of the cases treated. Of course we are still embarrassed occasionally by this unfortunate termination of our efforts and we shall continue to be, so long as we find small tortuous canals, from which it is next to impossible to remove all the pulp tissue and be sure it is removed, and granting that this part of the operation is successful to be able to fill it and know that it is filled.

This was not the only difficulty the early Crown operator had to contend with, for when a Crown was successfully set so far as abscess was concerned, the wearer was annoyed by its loosening and either coming out bodily, or rotating on the post as an axis. This was a very grave defect and while it succeeded in rendering the Crowning operation very unpopular both among the laity and profession, it led to a series of changes in the post and the method of attaching same, which are very interesting. As noticed above, the material used for this purpose by the early operator was compressed wood (hickory being preferred). This piece of wood was round in cross section and from its base, which was attached to the Artificial Crown, it tapered to a point at the other extremity,

its form being that of a slender cone. It is an interesting fact to note, in studying the causes why these Crowns should loosen, that no cementing substance whatever was used to fix them, the wooden post was shaped to fit the parts exactly and the artificial Crown driven to place, depending upon the swelling of the compressed wood to hold the parts in position. When we consider the material used, the form and method of fixing the post, it is rather a subject of wonder, I think, that they were successful at all. This led to the trial of other materials for posts. Gold was used and in 1862 vulcanite was used, being vulcanized around a gold wire, but this was not successful and soon fell into disuse. A metallic post (presumably iridio-platinum) came into general use in 1864 and an Oxychloride cement, then called Osteodentine was used to fix the post in the canal. This came very nearly solving this part of the problem: The form of the post was changed somewhat, instead of being shaped as was the wooden post, it assumed the form of the post now found in the Logan Crown. The post being fixed in the canal the Crown was adapted and cemented to place. In 1866 Dr. Taylor introduced a method of threading the end of the post and holding the Crown in place by means of a nut; this, however, was not successful on account of rotating and loosening. The most approved method nowadays is to have the post attached to the Crown, and the Crown and post adapted to the root, as in the Logan.

While the subjects of canal treatment and post were being dealt with there was another, graver than either of them, that was receiving the attention of the profession. As we stated above, the tooth thought to be best adapted for Crowning operations was the human tooth. It was found, after being placed in the mouth, to be governed by the same laws that governed other organic matter, and it soon began to decay as did the organ whose function it was intended to perform.

This led to a series of experiments in mineral substances to obtain some substance or combination of substances that would take the place of the natural tooth and that would resist the action of the fluids of the mouth.

The outcome of these experiments was the invention and manufacture of the so-called Incorruptible Tooth, a porcelain tooth. Samuel W. Stockton was one of the first Americans to engage in this industry and it was continued by his nephew, Dr. J. W. White, President of the S. S. White Dental Manufacturing Co., and former editor of the *Dental Cosmos*. At first this tooth was ill-adapted as regards form, colour, and physical properties to fill the purposes for which it was intended. As the skill in manipulating the several materials that go to form a porcelain body increased, the product approached the ideal at which the porcelain tooth manufacturer aimed, till to-day we have all that could be desired in the way of shades and a fair result in physical properties, but the mould will still bear improvements and additions. The Crown that has been evolved from the foregoing advances and whose prototype was the natural tooth with the compressed hickory post is the Logan Crown. This Crown is justly entitled to its wide popularity and far surpasses any Crown of this type.

Let us now look into the origin of a few other types of Crown, the Richmond, the Gold shell and the Porcelain. We will take the Richmond Crown first. Not all the cases that presented themselves to the earlier operator for his professional services were considered by him to be typical cases for the Pivot Crown. Occasionally a Bicuspid presented with the lingual wall and cusp gone but the buccal half of the tooth intact and strong. The Dentist at once set about the task of restoring the normal function of the diseased organ and at the same time saving that part that was sound. It was not a case for filling, cohesive gold was not in use then, and a

contour gold filling was unheard of. So the tooth was contoured to its normal form with some temporary filling material, an impression taken, die and counter die made, and a piece of plate gold swaged to fit over the temporary filling. Loops of wire were soldered to the inside of this partial crown to engage in the temporary filling material. This partial crown was put over the temporary filling, which was usually gutta-percha, and with a hot burnisher burnished to place, or else set in cement. Later on we find some progressive operators in cases where the buccal cusp and wall had been lost by decay grinding in porcelain and fastening it by means of a gold band. In 1882 Dr. Richmond combined the two methods and gave to the profession the Richmond Crown, which, with a few improvements, is the Gold-Porcelain combination or so-called Richmond Crown extensively used to-day.

The Gold-Shell Crown has the same origin as the Gold-Porcelain combination Crown, for in dealing with this same class of cases the idea suggested itself to the mind of Dr. Beers, of California, in 1873, to cover the remaining tooth substance with a gold shell. The method of constructing this Crown has changed somewhat but the principle remains the same.

The Platinum-Porcelain combination, or the so-called Porcelain Crown belongs to the same class as does the Gold-Porcelain combination Crown, from which, I think, it may justly be said to have originated. At any rate it is constructed upon the same principle and has for its basis the same theory, but is capable of a much more artistic result. This is one of the latest advances in this line of work and in the hands of the skilful operator more nearly approximates nature than anything so far devised. Being comparatively new and at the same time old enough to have demonstrated to the mind of the most sceptical that it has come to stay, I shall be

pleased, with your permission, to go somewhat into the details of its construction. The root preparation is practically the same as for the Gold-Porcelain combination Crown. To get the best result the root should be cut perpendicular to the long axis of the tooth at the free margin of the gums in the interproximal space. In the case of an Incisor, this would leave the root projecting incisally from the tissues, both labially and lingually. Now, with a round edge stone bevel the labial one-third of the root beneath the free margin; this may be done without wounding the soft tissues in the least. The enamel should now be removed with suitable instruments so that the largest circumference of the root is at the gingival line. If this result can be obtained without removing all the enamel there is no objection to its remaining. The measure is now taken, the band made and festooned before it is put on the root. This operation is simplified if the enamel is removed and the band made and fitted before the root is bevelled labially, since it is rather difficult to measure a root after it has been cut beneath the free margin. After the band has been fitted and both band and root bevelled beneath the free margin labially, and let me say just here that a band should never go beyond the gingival line on a root in a normal condition, we are ready for the cap and post. This part of the construction is the same as for the Gold-Porcelain combination Crown, except the post must project incisally three or four mm. The cap is constructed of 29 gauge platinum plate and put together with 25 per cent. platinum alloy solder. It is now possible to grind the facing selected, snugly against the soft tissue, wax it in place, remove (from mouth or model as case may be), invest and attach the pins of the facing to the projecting post of the cap with pure gold. After the piece is cold remove the excess of pin and post, if any, with a stone, place the crown in a 25 per cent. solution of Sulphuric acid, then wash thoroughly

to remove all of the acid. We are now ready for the body ; absolute cleanliness is one of the first considerations in this part of the technic. We have no more right to expect results in porcelain work if we do not use every precaution to have every part of the operation clean than we have to expect results in a chemical analysis if the apparatus is contaminated with foreign elements. The body is mixed with a solution of gum-tragacanth and applied with a spatula, care being taken not to apply too much at once and to continually jar it with a vulcanite file ; this will cause the mixing fluid to come to the surface, which is blotted off with a clean cloth. The particles of body arrange themselves in a very compact condition, and this process is continued till the desired contour is obtained, the piece allowed to dry and baked in a suitable furnace. We have resultant from this operation a Crown which in its combination of most of the attributes which go to make up the natural organ so closely approximates nature, and so admirably performs its function that it is thus far the acme of modern Dentistry.

There is an improvement in the cap of this type of Crown which, I think, very materially strengthens it. It will be remembered by those who have paid any attention to this class of work, that one of the defects that has been eliminated in the last year or so was the liability of the thin shell of porcelain that overlapped the gingival part of the band to shale off and leave a rough, irritating surface. This was eliminated by simply not permitting the porcelain to overlap the band. The same result is obtained by the improvement that was attained by permitting the porcelain to overlap the band, and at the same time the crown is rendered stronger.

Take the cap as above constructed and fit a piece of 26 gauge platinum plate to the lingual part of the band so that it extends to within a millimeter of the gingival edge and project an equal distance above the surface of the cap, extending

around the circumference from the beginning of the bevel mesially to a similar point distally, this is soldered with a 25 per cent. platinum alloy. We have resulting a flange projecting around two-thirds of the cap and acting as a socket for the finished crown, the gingival edge of the reinforcement is bevelled with a stone to closely approximate the form of the enamel at this part of the tooth, and polished.

REMOVAL OF SUPERIOR MAXILLA.—Mr. Chauncy Puzey recently showed a man, aged 61, whose right superior maxilla he removed in January, 1901, for "malignant polypus" growing from the antrum. The line of incision was Ferguson's, and the result was a good instance of the very slight disfigurement which that extensive wound often left. Before the operation, the origin of the polypoid growth, which filled the right nares (anterior and posterior) was doubtful, as there was no alteration in the shape of the jaw, either in the cheek or the mouth; but there was obstruction of the lachrymal duct. The principal complaint made by the patient was that he was suffering incessant and often agonising pain, shooting up behind the eye and right forehead to the top of his head. This was readily accounted for when it was found during the operation that all the posterior wall of the antrum had disappeared, together with a considerable portion of the floor of the orbit, and a portion of the ethmoidal cells, this being apparently the result of pressure (not infiltration) by the growth. The growth was reported to be "sarcoma," spindle-celled with a considerable amount of interstitial tissue in parts, not very malignant.

British Journal of Dental Science.

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ARMY DENTISTS.

As notified in our last issue, the Secretary of State for War has at last granted permission for the Army to have the advantage of the services of skilled dental surgeons. One has been appointed to London and one to Aldershot, while four have been sent to South Africa. We hail this small instalment with great pleasure, as for many years in these columns we have pointed out the hardships entailed on our soldiers and sailors from the inability to receive proper dental attention at home and abroad. No doubt the present war has brought matters to a head, especially the fact brought forward in the House of Commons, and freely circulated in the Press, that a large proportion of recruits were rejected on account of the defective state of their teeth.

The War Office does not seem to accept reforms with celerity, and especially is this the case with things medical. The Army Medical Service has for a long time been consistently snubbed and slighted with the result that for a time it was practically boycotted by our best medical graduates. When war broke out it was seen at once how inefficient the department was in many ways, and the services of civilian medical men were eagerly requisitioned. But even then the services of dentists were considered *de trop*, and it was with the greatest difficulty that Mr. NEWLAND-PEDLEY obtained permission to accompany the troops, his request for assistants being peremptorily refused. In the Soudan campaign WALLER BEY of Cairo accompanied the army for a part of

their march and Dr. CONAN DOYLE has left on record the need of dentists at that time. In the Afridi campaign articles appeared in the papers from time to time drawing attention to the sufferings of the men from toothache among the snow-clad hills of Northern India yet nothing was done. At last after the United States and Germany had set the example and after Mr. NEWLAND PEDLEY had written his experiences in the *Lancet*, Mr. Brodrick consented to receive a deputation of dentists with the result that a certain number of dental surgeons have been appointed in a tentative manner and we have every reason to hope that the present appointments are only a preliminary to a larger scheme. The Army dentists will have civilian surgeon's pay, namely one pound per day and Captain's allowances, the Government providing equipment other than the dentists' own instruments. In the United States Army the dental surgeons are paid one hundred and fifty dollars (£30) per month, holding the rank of "acting assistant-surgeons," under a three years contract. They must be between 24 and 40 years of age, and have passed an examination before a Board appointed by the Secretary of War. They are attached to the Medical Department, wear the uniform of an assistant surgeon and rank as a first lieutenant. Instruments and supplies are furnished. Their services are requisitioned between the hours of 9 a.m. and 4 p.m. for officers and men—wives and families not included—but after these hours they are at liberty to see whom they please and charge for such extra work.

The *Lancet* in a recent article on this subject thinks it perfectly right and feasible that the Army should have its teeth attended to by competent men, but sees difficulties ahead in the matter of making recruits "able bodied" in this way. In the first place it says that many recruits who have been rejected ostensibly for unsound teeth have really been turned away for some other cause such as syphilis, scrofula, &c. Again it urges as a practical difficulty that if the men have their teeth attended to before being legally "sworn in" they may change their minds and having had their teeth put in order gratuitously not join the Army at all. On the other hand,

if they are sworn in first what is to be done with them while they are waiting and are having their mouths rectified, they must either be housed on the spot or drafted up to the dental surgeon, or dental surgeons must be appointed to a large number of stations causing great expense. These are matters which must be carefully thought out, but we see no reason why they should be insuperable. The recruit could be made to place himself under a bond, and contracts could be entered into with Dental Hospitals and private practitioners. At all events the move is a sensible one, and we are sure that the details can be worked out now that the authorities seem in earnest in the matter.

OPENING IN RHODESIA.—The British South Africa Company has issued a handy pamphlet containing "information for intending settlers in Southern Rhodesia." The learned professions, with the exception of dental surgery, are all well represented in Rhodesia; but as the country develops and the population increases further openings must occur. A first-class dentist would probably quickly succeed in establishing a good practice. There is usually a good demand for skilled labour, and fitters can earn good wages—£1 to £1 10s. per diem. Of course, the great army of the incapables—whether dentists or domestics—will be no better off in Rhodesia than at home. But people who really want to take advantage of the opportunities for rapid advancement which a new country offers ought to do very well in Rhodesia.

GRATITUDE.—A respectably-dressed woman and her child presented themselves for treatment at the dental department of the Scarborough Hospital, and the mother expressed a wish for "gas" to be administered. This was done, and on leaving she expressed a desire to make some contribution. She was directed to the box for voluntary offerings, but, unfortunately, dropped the evidence of her gratitude into the letter-box. It was a penny.

POPLAR DENTIST AND BOARD OF GUARDIANS.—The Schools visiting committee reported that they had considered letters received from seven qualified dentists in answer to the Board's advertisement and recommended that a contract be entered into with Mr. H. B. Moxon, at present dentist at Feltham Industrial School, to examine and attend to the teeth of the children in the Schools for an inclusive salary of £60 per annum. This was agreed to.

HIPPOPOTAMUS DENTISTRY.—The "New York Journal," describes in picturesque style, the operation which took place in the Madison Square Gardens of New York of filing the teeth of the hippopotamus. Two tusks, which grow out of the lower jaw, start in a vertical direction, but have a strong curve backwards. These tusks do the hardest work, and are used in tearing up trees and tough bushes. In captivity, however, they grow too long, and if left alone would grow up into the upper jaw and cause the animal to die a lingering and horrible death. Consequently the hippopotamus was secured with ropes; his jaws were held apart by strong fastenings while Mr. Sells, with some specially-manufactured files, rasped away at the tusks. The animal struggled at first, but afterwards realised that it was to submit, and when the operation was over, devoured his two loaves of bread and a bran mash with relish.

GENERAL WASHINGTON'S TEETH.—The Baltimore Dental College, the oldest dental college in the world, has in its possession one of the most interesting relics of George Washington. This relic is a set of artificial teeth, made by Dr. Greenwood, a dentist, who was also an officer in the Continental Army. The teeth were worn for some time by Gen. Washington. Dr. Greenwood afterwards made the General a second set, which he wore until his death, and which were buried with him. The first set was afterward presented to the dental college by Dr. Greenwood. As much

as 5000 dols. has been offered for this set of teeth, but the faculty of the college refused the offer. The teeth were exhibited at the World's Fair in 1893, and attracted much attention.

THE GENERAL MEDICAL COUNCIL AND UNREGISTERED DENTISTS.—Dr. Bakewell, of New Zealand, writes to the Editors of *The Lancet*.—"Will you permit an old contributor whose first article in *The Lancet* dates back to 1856 to enter a protest against the action of the General Medical Council in reference to unregistered dentists? Some two or three years ago I received from the Registrar of the General Medical Council a most impertinent notice telling me that if I employed an unregistered assistant I should be deemed "guilty of infamous conduct." I took no notice of this, as in New Zealand we have no assistants of any kind. But last year I received a similar notification about unregistered dentists. By this I was informed that if I administered an anæsthetic for an unregistered dentist I should be guilty of "infamous conduct in a professional respect." This was too much for my patience. The great majority of dentists here are not on the English Register, and apart from the outrageous misuse of the English language in calling the administration of an anæsthetic while another man is extracting teeth "infamous conduct," I was not going to submit to be dictated to by a council of trades unionists as to how I should carry on my practice. So I sent in my resignation and requested the Registrar to strike my name off the Register. This has been done. I was a fully-qualified practitioner four years before the Act of 1858 and I am fully-qualified practitioner now. The registration in England gave me no rights that I did not previously possess and its absence deprives me of none, but I have had the pleasure of cutting myself adrift from the very useless and incompetent corporation called the General Medical Council whose actions for years past I have looked on with contempt."

The *Lancet* remarks—"Dr. Bakewell does not appreciate

the good work that has been done and is being done by the General Medical Council in preventing all sorts of unqualified practice. The regulation of the Council making it unprofessional for a qualified medical man to assist an unqualified dentist is one that meets with universal approval in the mother country, but the situation in many colonies is a different one."

UNIVERSAL ANKYLOSIS.—Dr. Monro, in describing a case of this rare disease, says: After the patient became a prisoner in bed, he noticed that his mouth would not open so wide as formerly. After he lost the power of feeding himself, through the disease affecting the right upper limb, the jaws became quite locked. But by this time a gap had already become available for feeding purposes through the spontaneous falling out (or breaking at their necks) of two teeth on the left side, one above and the other below, at corresponding places. At one time, patient suffered a good deal from toothache, but not more, he thought, than other people. After the jaw became fixed, however, he had little or no pain. Other teeth gave way, but his mother (his devoted nurse, who still survives him) continued to supply him with the solid part of his diet through the aperture just described. Though toothache ceased to trouble him, he once had an abscess in the roof of his mouth, which caused him much pain.

THE University of Birmingham has applied to the Medical Council to approve and register under the Dentists' Act degrees in Dentistry granted by the University. It is proposed that the degrees are only to be conferred on those who have previously obtained a licence in Dental Surgery from a qualifying body. The Executive Committee, in view of the provisions of Section 2 (6) of the Dentists' Act (1878), has referred the application to the Dental Education and Examination Committee for a report on the standard of knowledge to be required for the proposed degree.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.*

(Continued from page 522.)

DISCUSSION.

The PRESIDENT said the members had listened with intense interest to the description the authors had given of their work. It was perhaps not surprising to find that the exact motion of the mandible was not as simple as one had thought, but it was rather unexpected to learn there was so much variety as had been pointed out. The paper would make some less anxious to dogmatise on the matter without going into the elaborate experiments and observations the authors had made. As the papers bore somewhat on the statements put forward by Mr. Constant in a recent paper, Mr. Constant, who was unable to attend, had sent up a model and a short communication on the subject, which he would ask the Secretary to read.

The following communication was accordingly read from Mr. Constant:—

“It is a matter of keen regret to me that I am unable to be present this evening to hear the paper upon the “Movements of the Mandible,” because the subject is one to which during the last two or three years I have devoted considerable attention; and, moreover, any observations of such distinguished members of our Society as Mr. Tomes and Mr. Dolamore are quite certain to be extremely interesting and of great scientific value.

“The movement of the mandible which would, to the casual observer, seem the most simple, but which is in reality the most complex, is that of simple depression. The description of this movement which is given in our text-books is often incorrect and is always inadequate. I drew attention to this fact in a brief communication to the British Dental Association at the Annual General Meeting at Leeds, and

* Transactions of the Odontological Society of Great Britain.

have since adverted to it in a paper read before this Society. It had been my intention to lay before this Society the result of my own recent investigations, but that would now, doubtless, be a work of supererogation. It may, however, interest the readers of the paper and the other members present, to see an apparatus I have designed for the purposes of the investigation and have found very useful. It is probably more crude in conception and more clumsy in design than the apparatus which the mechanical ingenuity of the distinguished writers of this evening's paper has enabled them to devise, but it has two merits, one of which should recommend it to such members as are in active practice as dental surgeons.

"The first is that it is trustworthy—that is to say, when properly adjusted it never gives contradictory records. Measurements I have found misleading; and the results obtained by projecting a shadow on a screen are unsatisfactory, and an extended trial of the method decided me to abandon it.

"With the apparatus now exhibited the exact centre of motion can be actually demonstrated, except in those cases where it does not exist, and in those the variation from the normal, and the extent of it, can be recorded. The cause of these variations has doubtless been discussed by Messrs. Tomes and Dolamore, and the curious relationship that exists between them and certain variations from the normal in the line of the occlusal surfaces of the teeth. I shall read their conclusions on this point with great interest, as it is one which has an important bearing on many problems connected with dental irregularities and their treatment.

"The method of using the apparatus is the following; the necessary impressions, &c., having been obtained, a plate is made carrying a brass disc which occupies the sulcus of the cheek. A lower plate is also made to carry a style with a spring, as shown. The brass disc is coated with wax, and the plate carrying it firmly fixed in its place in the mouth of the subject of the experiment. The lower plate is then put in and the spring brings the style in contact with the brass disc. The subject then makes repeated movements of depression and elevation of the mandible. The result is that the style scratches an arc on the wax of the brass disc. The plates are then removed from the mouth, and the arc on the brass disc engraved to make the record permanent. The plates are then waxed in position on the models as shown.

"These models have been previously adjusted to the brass bite frame in the following manner. They are carefully

placed together in the position in which the teeth articulate during occlusion, and are fixed in the bite frame, which is rendered immovable by the insertion of the two pins at the back. The models are fixed by the screws at a distance from the back of the frame equal to the distance of the teeth of the subject from a line drawn vertically downwards from the condyle of the mandible. Then one of the pins at the back of the frame is drawn out which allows it to be opened and the plates to be waxed in position on the models. When this is done the style is drawn out from the lower plate and the spring removed, and the style then replaced without it. This prevents it scratching the disc when moving the model which represents the mandible up and down to determine the point where the pin must be fixed at the back of the frame to make the style move in exactly in the arc scratched on the disc. When this has been done the spring can be replaced, and it is obvious that the pin on which the brass articulator pivots must represent the exact position of the axis of motion of the mandible of the subject of the experiment.

"The lower of the two pins in the case shown indicates the position of the axis of motion in the individual from whom the models were obtained. The position of the style and the arrangement of the plates must of course vary to suit individual cases.

"The particular apparatus shown was selected for its simplicity, and because the subject of the experiment could have been present at the meeting to-night had I been able to attend myself, and the members would then have had an opportunity of seeing the actual working of it.

"The feature of the apparatus that may appeal most strongly to the majority of the members present is that the brass bite frame makes an admirable articulator for ordinary use. It obviates the necessity for plaster work, and if care is taken to adjust it so as to bring the pivot as near as possible to the normal centre of motion, the bite can be raised or lowered with impunity and the certainty that it will be subsequently found correct."

Mr. F. J. BENNETT was indebted to the authors for the valuable accession made to dental knowledge, and the paper only added to the idea that it was a very difficult thing to get any uniform key to the movements of the jaw. Although the authors had taken observations and measurements of various skulls, there was no mention whether any regard had been paid to the age. The shape of the glenoid cavity in a

child would be very different indeed ten years afterwards, and in going through a room full of skulls very great differences would be found.

Mr. TOMES said obviously aged skulls were rejected as were also skulls with the wisdom teeth not yet erupted. Otherwise the skulls were taken at random from a large number.

Mr. BENNETT suggested that possibly some information could be obtained by the use of the X-rays.

Mr. TOMES said that matter had not been neglected, but no results worth bringing forward had been obtained.

Mr. W. HERN congratulated the authors on having made a material addition to the exact knowledge of the movements of the mandible. The thing that struck him very forcibly in the investigation was the want of coincidence of the line of closure and the line of opening of the jaw, and he asked the authors whether that occurred pretty constantly in testing any particular case.

Mr. TOMES said it was constant for the individual, but not the distance apart. The distance apart of the opening and closing lines varied in the individual, but the individuals who have their closing line in front of the opening lines have it there always, and the one individual who reversed this condition of things was equally constant.

Mr. HERN: Inasmuch as the diagrams showed that the closing line of movement of the jaw was usually in front of the opening line, and came back to its position of rest by jumps backward, as it were, just before the mouth was at rest, it showed that the cusps of artificial teeth should not be too interlocking or they would prevent the easy backward movement of the jaw to its correct position, especially if this backward jerk to the correct position was delayed until rather a late period of closing. It was his experience that a great many artificial teeth were made with cusps so long and interlocking as not to allow a sufficient side to side movement in mastication, and he should judge from what the authors had shown that such elongated cusps would also prevent, to a certain extent, the free closure in an antero-posterior direction.

Mr. W. A. MAGGS said that it had been generally held up to the present that the condyle remained practically in the same position in ordinary movements of the mandible and was simply a hinge joint, but the authors had dispelled that idea and showed the condyle moved forwards as well as downwards from the beginning of the opening of the mouth. The

depth of the glenoid cavity in man as compared with anthropoid apes and the lower monkeys was very interesting. The authors attributed the change to the acquired upright position in man as compared with the quadrupedal attitude in monkeys, but he did not know whether they would think the alteration in the diet of man was also a factor in the case? The anthropoid apes probably lived upon fruit and nuts and did not require the depth of condyle required by the omnivorous diet of man. Therefore he asked the authors how far the food of man may have brought about the greater depth of condyle, bearing in mind that a deep glenoid cavity is observed in carnivorous and a shallow one in herbivorous animals.

Mr. BALDWIN thought the part of the question which affected dental surgeons practically with regard to the articulation, both in considering the proper adjustment of a set of artificial teeth and the possible effect the bite might have on the teeth in making them irregular, as in cases of protrusion, was that part of the movement which closed the teeth upon each other, not the part which carried the jaws into a wide position of opening. Mr. Hern had mentioned that in setting up artificial teeth the cusps were very often made too pronounced and might catch in an awkward way when the mouth was closing. He (Mr. Baldwin), thought that the catches Mr. Tomes had described occurred before the teeth came into articulation at all. Dr. Bonwill's theory was that the cusps should be very considerably pronounced, especially in front, exactly the right length, and exactly proportioned to each other; and he thought a great tribute was due to Dr. Bonwill, not because of his theoretical considerations, but because he really applied himself to the intelligent study of the bite, and really seemed to get a pretty true appreciation of the mechanism of the closing of the jaws and the importance of getting artificial teeth into exact alignment, with all little niceties of arrangement reproduced as in nature. He thought Dr. Bonwill's work on this subject would repay a careful study. Looking at the tracings which the authors had shown, the actual closing movement was a very vertical one, and a rather simple motion, and he thought if Dr. Bonwill's articulator put the hinge nearly into the right place it would as a matter of fact allow a set of teeth to be put up fairly perfectly.

Mr. W. RUSHTON said Mr. Constant's theory was that when the teeth were closing upon each other there was a

forward thrust and that forward thrust was responsible for forming superior protrusion. He asked the authors whether they corroborated that opinion or dissented from it, and also whether their experiments threw any fresh light on the phenomena of superior protrusion and of jumping the bite?

Mr. LEWIN PAYNE said he agreed with Mr. Maggs in thinking that the shape of the condyle and glenoid cavity had a marked influence in the movement of the mandible. The nature of an animal's food was also an important item in the movements of the jaw, as it was this which appeared to determine the character of the joint. He contrasted the temporo-maxillary joints of the typical carnivorous animals—where a transverse condyle is found deeply implanted in the glenoid cavity—with the same joint of the herbivora. With regard to the human subject too, the shape of the condyle varies according to age. In a child the condyle is nearly flat and fits into a shallow glenoid cavity. Whereas in the adult the condyle becomes deeply buried. He pointed out also, in regard to the muscles surrounding the joint, that an inverse relationship existed between the development of the temporal and masseter.

Mr. NORMAN BENNETT said the authors had mentioned that the experiments showed that the movement of the condyle forward commenced immediately, but he did not quite gather how it was proved. He understood that the short curves marked on the diagrams represented arcs of a circle drawn from the separate centres in the path of the condyle on the face, but he did not quite see how it was proved that at the commencement the first part of the chin curve was not formed before any movement forwards of the condyle took place, except in so far as the two large arcs on the diagrams were not coincident. If the deduction was drawn from that observation the coincidence would have to be shown extremely accurately to prove that the two movements commenced synchronously. He also asked whether in the experiments the authors elicited any facts dealing with the correspondence between the various portions of the two curves, or in other words, the relation between different parts of the two paths of the chin and the condyle respectively.

Mr. BADCOCK had understood the authors to say that the excursion of the condyle forward permitted by the ligament was about half-an-inch, and he wished to know whether this measurement was from the point of rest forward or whether

it was the whole excursion backward and forward permitted by the condyle?

Mr. W. H. DOLAMORE, in replying, said that the strongest evidence in favour of the movement being always a combination of a sliding and a hinge movement was found in the tracings. Mr. Tomes, in his sketches on the board, had said that the coincidence of circles drawn from points along the *eminentia articularis* did not correspond, which was quite true, but at the same time that perhaps was open to the minor criticism that Mr. N. Bennett had made. On the other hand, there was no possibility of getting a forward position unless the condyle slid forwards, and there was no possibility of the tracings being in front of a circle drawn from the condyle at rest, unless this sliding movement occurred: that forward movement was seen to occur at the very beginning. Mr. N. Bennett also asked what correspondence there was between a movement, say one-eighth of an inch, of the condyle and of definite segments of the arc of the circle of the tracings. He (Mr. Dolamore) did not think their work justified him in making any definite statements. As a matter of fact it was extremely difficult to get accurate measurements. Perhaps some of the work which was done might have been done more exactly, but until the end of a work was reached it was not always possible to see what should have been done at the very beginning. There were many sources of error in getting exact measurements, one being the difficulty of absolutely locating the position of the condyle. A series of measurements were taken and curves traced from them, but it was found that if the measurement at the end of the wire was out, even by so much as one-eighth of an inch, it made a difference of about an inch at the condyle, and consequently it was almost impossible to bring any measurements forward and vouch for their accuracy. With regard to the superior protrusion theory, as far as the experiments went, they would not tend to support this; but of course every work was open to error, and it might possibly be that some of their work might be disproved. They had drawn attention to the steps in the tracings. The steps did not occur in all of them, and it was very difficult to eliminate the individual factor when a tracing was being taken. When asking a man to close his mouth he often accentuated the movements. One person from whom tracings were taken made the movements in so erratic a manner that they were absolutely useless, because he ended up without

bringing the teeth in apposition. Several tracings were taken from one individual, and if in the majority of these a bite forward was shown it was presumptive at any rate that it did occur. It had been suggested that food had a great deal to do with the variation in the shape of the eminence.* The work described in the paper went to show that the peculiarity in the shape of the eminentia articularis and of the fossa had to do with the position of the jaw in opening the mouth, and it was obvious that when the mouth was open the teeth were certainly not masticating food. As a matter of fact, if the condyle was brought forward on to the eminentia articularis the teeth could not be in apposition, and therefore it was impossible to see how the kind of food could at all affect the development of an eminence which obliged the teeth to be separated. With regard to the half inch which the ligaments allowed the condyle to move forward, it was taken from the position of rest of the condyle, and the position of rest, in his opinion, was its extreme backward position. He believed that the external lateral ligament absolutely prevented the condyle from moving back from the position of rest. In man there was no postglenoid process, such as many animals had, which acted as a bony bar to the condyle moving backwards. If it was possible to move the condyle further back than the position of rest, then the structures, parotid glands, &c., behind, would certainly get pressed upon.† With reference to Mr. Constant's articulator, it appeared to coincide with the majority of the movements, but to be absolutely scientifically accurate it was obvious that it would be necessary to take a tracing from each patient and then take the centre of the circle and set the hinge on that centre. This

* It may be pointed out that the howling monkey, which, as we have shown in the paper, has an eminence similar to that of man, does not differ in its food from that taken by other new world monkeys, which have no such specialised articular surface.—W. H. D.

† This would apparently receive confirmation from the observations I have elsewhere recorded, that after extraction of the teeth many patients are unable to immediately approximate their gums, though in a few days they are so able. Also many patients, who have worn dentures for some years, again cease to be able to approximate their gums. It is obvious that when the gums are brought into contact, i.e., when the mouth is closed more than is normal, the movement of the condyle would be backwards, the reverse of the forward movement during opening. That which would prevent the backward movement of the condyle, i.e., not allow the gums to approximate, can only be the ligaments.—W. H. D.

might be possible but was hardly practicable. A series of X-ray photographs were taken showing the jaw in its various positions; they confirmed the previous work as far as they went, only it was extremely difficult to get the photographs sufficiently clear to make dogmatic diagrams from them. Mr. Tomes and he had ventured to offer an explanation of why the jaw moved forward in the majority of cases during closure, showing in the tracings a circle anterior to that formed by the opening movement. The explanation offered was met by the difficulty that in one patient it habitually closed in a circle posterior. Five or six tracings were taken, and in each one the movement was identical. The curious factor in that patient's case was that the circles were very much altered when the individual had his collar on and when he had it off. A very little thing seemed to alter the movement of the jaw; the muscles appeared to be able within limits to control the position of the jaw.

The PRESIDENT having thanked the readers of casual communications, Mr. Tomes and Mr. Dolamore for their valuable and interesting paper, and those members who had taken part in the discussions, adjourned the Society to Monday, May 20, 1901.

STUDENTS' SOCIETY. NATIONAL DENTAL HOSPITAL.

The usual Monthly Meeting of the Society was held on May 17th. The President (Dr. Maughan) in the chair.

The Secretary having read the minutes, Mr. B. C. Marriot Watson was elected a member of the Society, and the following gentlemen were proposed:—

Messrs. J. K. Clark, S. Collyer, F. W. Bond, W. S. Rose, G. D. Winter, D. V. Hoddy, M. Jackson, F. Gordon, H. Swann, G. W. Wright, and W. A. Thompson.

The President announced that there were no Casuals, and called on Mr. Howorth for his paper entitled "Drugs in Relation to Dentistry," which is concluded in our present issue.

At the conclusion of Mr. Howorth's valuable paper, the

President invited the members to enter into discussion on any of the many points of interest.

Mr. Norman Black said that although he could not presume to criticise such a paper as Mr. Howarth had read to the Society, yet he would like to say a word or two on two of the drugs which had been mentioned. Firstly, formalin, which is so very greatly advocated by many practitioners who has been found by some to be of so irritating a nature as to preclude its use. All students who have had to study a formalin prepared corpse will recollect the unpleasant symptoms of coryza which they must have experienced as a result of its use.

The second drug noted was Orthoform, and Mr. Black recalled to memory a far advanced case of epithelioma on which Mr. E. W. Roughton had delivered a clinic about a year ago. Assured that operative treatment would be futile, among other things Mr. Roughton recommended the blowing of Orthoform powder on to the raw surface, assured that this would very greatly mitigate the patient's suffering.

The Dean said Mr. Howorth's allusion to ergot reminded him of the reports of Professor Wright at Netley, as to the use of Chloride of Calcium administered internally for controlling hæmorrhage. After removing gum tissue which had crept over the cervical margin of a cavity Ferro-pyrin was useful, a combination of iron and antipyrin in the form of orange-yellow powder and applied on a cotton pellet. With regard to nitrate of silver, also mentioned in the paper, there could be little doubt but that it checked the progress of caries and when well rubbed into affected dentine was of service in treating certain cases in children's mouths especially.

Mr. S. F. Rose asked Mr. Howorth what his experience had been in the use of cocaine to obtund the sensitiveness of dentine.

Mr. Harry Rose mentioned a case of obstinate hæmorrhage that he had treated by means of the actual cautery. The bleeding was from the socket of a lower canine tooth and had been going on for six hours, until the patient was almost in a state of collapse. A solution of cocaine was introduced into the socket, and then a very thick piece of platinum wire having been made red hot was passed to the apex of the cavity and gently rotated. It was quite a painless operation and the stoppage of bleeding instantaneous.

Dr. SIM WALLACE asked if there was any consensus of opinion with regard to the value of Ergot as a means of arresting hæmorrhage after tooth extraction. It was said by

some that the advantages derived by it in bringing about tonic contraction of the arterioles was out-balanced by the corresponding increase of blood pressure which was thereby brought about. He would be glad to know what had been the verdict of practical experience with regard to this drug.

Mr. HASKEW asked what objection there could be to a dentist advising a patient to use some well known and tried preparation? For example: why should he not in a suitable case prescribe "Listerine" as a mouth wash? He also enquired whether Mr. Howorth had noticed the destructive action on the teeth of the carbolic acid in certain tooth powders?

Mr. HOWORTH in reply said that he had not had much personal experience in Dental Surgery respecting many of the drugs concerning which questions had been asked. As regards Calcium Chloride as a hæmostatic mentioned by Mr. Spokes, fibrin ferment had of late become rather prominent. Respecting Listerine Mr. Howorth said that it was a preparation made by an American firm and to which firm alone was known the correct composition of the preparation. There were hundreds of formulæ published for a so-called Listerine nearly all the formulæ differing somewhat in composition. He had not heard of the deleterious effect that Carbolic Tooth Powder had on the teeth.

In reply to a question respecting the efficacy of Cocaine in obtunding sensitive dentine, Mr. Howorth said he had found it occasionally of use but most effectual when in combination with Carbolic Acid.

After announcing that the next meeting of the Society would be held on Friday, June 7th, when Mr. Mosely would read a paper entitled "Treatment and Filling of Root Canals" the President invited those present to the Common Room, where refreshments were provided.

Dental News.

THE GENERAL MEDICAL COUNCIL.

The seventy-first session of the General Council of Medical Education and Registration was opened on Tuesday, June 4th, in the Hall of the Council, Oxford street, London, W.

Sir William Turner, President of the Council, occupied the chair.

Introduction of New Members.

Dr. Norman Moore was introduced as the representative of the Royal College of Physicians of London and Sir John Williams as a Crown representative. Both gentlemen were welcomed by the President before taking their seats.

The President's Address.

The President began his address by referring to the lamented death of Her Majesty the late Queen. Passing to matters which had arisen during the recess the President referred to a correspondence with the Lord Chancellor upon the subject of companies practising medicine, and an interview with Sir Richard Jebb about the Penal and Disciplinary Bill promoted by the Council. The Minister and the Lord Chancellor replied in the usual official form that the several matters would have their careful consideration and Sir Richard Jebb promised to look after the Council's Bill. The President continued :—

Early in the Parliamentary session I asked Sir Richard Jebb, who introduced last year into the House of Commons the Penal and Disciplinary Bill promoted by the Council, if he would again take charge of the measure and he kindly acceded to my request. It must, however, be obvious to all of us, from the state of Parliamentary business, that there is little, if any, probability of private members obtaining for their Bills a place in the Statute Book during the present sitting.

The Case of Nottingham Dentists.

On the Dental Committee's report on the cases of Messrs. Isaac Jeffries Dasley, Henry Smith Clarke, and Reuben Widdowson being reached,

The President, as chairman of the Dental Committee, stated that all these three gentlemen were in practice in the town of Nottingham, and they were all charged with practically the same offence—namely, advertising in an objectionable way. When the matter came up before the Dental Committee all the accused had consented to their cases being taken together. Perhaps the same course could be followed in the Council. If there was no objection he would call upon the three persons who had been summoned.

The suggestion was agreed to, and there appeared thereupon Dr. Hugh Woods, secretary of the London and Counties Medical Protection Society, Limited, the complainants; Mr. Dadley, accompanied by Mr. Ockerby, his solicitor; Mr. Wright-Motson, on behalf of his client, Mr. H. Smith Clarke; and Mr. Widdowson for himself.

The Registrar read the reports of the Dental Committee which were—

In the case of Mr. Dadley the committee find that the following facts were established by the evidence:—(a) That Isaac Jeffries Dadley was registered in the Dentists' Register as in practice before July 22nd, 1878, and his address in the Dentists' Register is 19, Carter Gate, Nottingham. (b) That Isaac Jeffries Dadley has habitually issued and caused to be issued advertisements in various magazines and newspapers and local theatre and music hall programmes and tramway tickets and has exhibited in the Great Northern railway-station at Nottingham a show-case containing artificial teeth and a photograph of himself, with his name, description, and address in large letters. (c) The said I. J. Dadley has withdrawn all the advertisements complained of and undertakes not to advertise in future anything beyond his name and address, and further to abide by any expression of the views of the Council on the subject of advertising in general. The evidence before the Committee consisted of;—(a) A statutory declaration of Dr. Hugh Woods dated Sept. 28th, 1900; (b) various advertisements and a photograph exhibited to that declaration; (c) a letter from Mr. Dadley to the solicitor of the Council dated Feb. 20th, 1901.

In the case of Mr. Clarke, the Committee find that the following facts were established by the evidence;—(a) That Henry Smith Clarke was registered in the Dentists' Register as in practice before July 22nd, 1878, and his address in the Dentists' Register is 1, Clarendon street, Nottingham. (b) That Henry Smith Clarke has habitually issued, and caused to be issued, advertisements in various parish magazines, on various cards of the Notts County Cricket Club and of the Notts Forest Football League, and in a pamphlet and leaflet issued by him. (c) Mr. Clarke's solicitor stated on his behalf that Mr. Clarke had taken steps to withdraw all the advertisements complained of, and undertook for the future to discontinue the issue of advertisements of any kind. The evidence before the committee consisted of; (a) A statutory declaration of Dr. Hugh Woods, dated Sept. 28th, 1900; (b) various advertisements exhibited to the declaration; (c) a letter dated January 28th, 1901, from Mr. Charles Stroud (Mr. Clarke's solicitor at Nottingham) to the Council's solicitor; (d) a letter dated February 21st, 1901, from Mr. Clarke to the Committee.

In the case of Mr. Widdowson the Committee find that the following facts were established by the evidence;—(a) That Reuben Widdowson was registered in the Dentists' Register as in practice before July 22nd, 1878, and his address in the Dentists' Register is 12, Arkwright street, Nottingham. (b) That Reuben Widdowson has habitually issued, and caused to be issued, advertisements in railway time tables and in a parish magazine; and he also exhibited in the Great Northern Railway station at Nottingham a show-case containing artificial teeth, with his name, description and address in large letters. (c) The said Reuben Widdowson has withdrawn all the advertisements complained of, and also the show-cases, and undertakes not to advertise in future anything

beyond his name and address, and further to abide by any expression of the views of the Council on the subject of advertising in general. The evidence before the Committee consisted of ; (a) a statutory declaration of Dr. Hugh Woods, dated Sept. 28th, 1900 ; (b) various advertisements and a photograph exhibited to that declaration ; (c) a letter from Mr. Widdowson to the solicitor to the Council dated Jan. 25th, 1901.

Having by standing orders the option to either hear parties or to consider forthwith the Dental Committee's reports, the Council agreed to do the latter, and the room was cleared.

On the re-admission of the public,

The President intimated that the resolution come to as respected each of the three cases was this :—

That the Council, taking note of your withdrawal of the objectionable advertisements complained of, and of your assurance that you will abstain from the issue of like advertisements in future, has decided to proceed no further in reference to the facts proved against you.

The first case considered was that of Mr. William Randall Knightley, R.N., registered as M.R.C.S. Eng., 1892, Lic. R. Coll. Phys. Lond., 1892, who was summoned to appear before the Council in consequence of a judgment given in the High Court of Justice, Probate, Divorce, and Admiralty Division, on December 21, 1900, in the case of "Harvest v. Harvest and Knightley." Mr. Cripps, K.C., appeared for Mr. Knightley. Mr. Winterbotham, the council's solicitor, said that this was a case to which the public Press first called attention, and it was one into which it was thought necessary that the council should inquire and consider whether it came within their rule in regard to "infamous conduct in a professional respect." He proceeded to state the circumstances of the case of "Harvest v. Harvest and Knightley," and to read Sir Francis Jeune's summing up in that case, in which Mr. Knightley was the co-respondent. Mr. Cripps, on behalf of Surgeon Knightley, said that he had still to serve eight months in the Navy to earn a gratuity of £1,000 on his retirement, and if the council took the serious step of erasing his name from the medical register he would be deprived of his position in the Navy. He reminded the council that the jury had assessed the damages at £4,000, and said that £3,000 of that sum had been paid by Mr. Knightley's family. The documents in the divorce case had been considered by the naval authorities, and notwithstanding their contents, Mr. Knightley had been reappointed as naval surgeon. Mr. Knightley gave evidence in support of his counsel's statement, and, the council having deliberated in private, the

president announced that the council judged him to have been guilty of misconduct in a professional respect and had directed the registrar to erase his name from the medical register.

The next case dealt with was that of Mr. George Thomas Ockleford Crocker, dentist, practising at Southampton, whose wife, it had been found by the Dental Committee, had performed a certain dental operation as her husband's assistant. It was not proved that Mr. Crocker had any knowledge of the operation, but he admitted that his wife had dressed teeth for him when he was busy. The president informed Mr. Crocker that the council, having deliberated on his case, acquitted him.

The council postponed until the next session, for the practitioner's attendance, the further consideration of the case of Mr. Alexander Wood Donaldson, dentist, of Bury St. Edmunds, in regard to whom the Dental Committee had found that he had advertised himself with the description, R.D.S., R.C.S.Eng., and subsequently with the description R.D.S. Eng. Mr. Donaldson had stated by statutory declaration that he erred through ignorance.

Communications were read from the Royal College of Physicians of London and the Royal College of Surgeons of England with regard to a resolution of the council, passed at the last session, to the effect that it would continue to adhere to its regulation with regard to the registration of medical students. The two letters were almost identical in terms, and by them the council was informed that, in consequence of its adherence to the regulation, the colleges could no longer require the registration of students by the General Medical Council as a condition of admittance to examination for their diplomas, and that the regulations for the qualifications of the two colleges had been altered accordingly.

INTERNATIONAL DENTAL FEDERATION.

A meeting of the Sub-Committee of the Executive Council of the International Dental Federation (F.D.I.) was held at Paris on May 27th, 1901.

At this meeting the following measures were decided upon:

1. The proposed meetings in England this year will be held at the time of the annual meeting of the British Dental Association.*
2. The Executive Council will examine at a preliminary meeting in

London on Sunday morning, August 4th, the proposed regulations for the International Dental Federation which the Sub-Committee is charged to prepare.

3. The International Committee on Education will also hold a first meeting on the same day in London.

4. The International Committee on Education will meet again at Cambridge on Wednesday, August 7th, at the conclusion of the meeting of the British Dental Association.

5. A second meeting of the Executive Council will be held on Wednesday, August 7th, after the meeting of the International Committee on Education to conclude business.

6. A general meeting of the Executive Council and of the International Committee on Education will take place on Wednesday, August 7th, at Cambridge. To this meeting the Delegates of the national Committees, the Delegates of the Societies and the members of the Societies and national Federations which took part in the constitution of the Congress of 1900 are invited. Other visitors will be especially invited by the Executive Council.

7. The last meetings will be held within the precincts of the University of Cambridge.

8. A special banquet will terminate this first session of the International Dental Federation.

9. Delegates may be appointed by the Executive Council, by the Federations or by national societies.

10. Notices of convocation, containing the orders of the day for the various meetings and all other necessary instructions, will be sent out at a later date.

For all information apply to Dr. Sauvez, general secretary of the Executive Council, 45, rue de la Tour-d'Auvergne, Paris.

Firstly let us recall that the International Dental Congress resolved that an International Dental Federation should be created, and that the national Committees promoted in view of this Congress should be maintained and constitute this International Dental Federation.

It was also resolved that the said Federation, formed of all the existing National Committees, should be represented by an Executive Council. A resolution was also passed that the first Executive Council, consisting of nine members should be appointed by the members of the Congress at the general meeting of the 14th of August, and that its powers should expire at the opening of the 4th International Dental Congress, which it will organize.

The Executive Council was instructed to appoint the International Educational Committee at its first sitting to be held on the 15th of August at 9.30 a.m. in the Ecole dentaire de Paris.

In accordance with the resolution passed at the closing General Meeting, on the 14th of August, the International Commission consisting of M.M. Aguilar, Cunningham, Forberg, Godon, Grevers, Harlan, Hesse, Pichier and Sauvez, held its first sitting on Wednesday, August 15th, at the Ecole dentaire de Paris.

All the members were present at this Meeting, with the exception of Dr. Hesse (who had deputed his powers to M.M. Godon and Sauvez) and Drs. Grever and Pichler.

The Meeting elected as Chairman M. Godon and as Secretary-Treasurer M. Sauvez, and voted the following resolutions;

The office of the Executive Council shall be for the present situated

in Paris, France, at the Ecole dentaire de Paris (45, rue de la Tour-d'Auvergne), and abroad at the address of each member of the Commission.

The title chosen is that of ; Conseil Exécutif de la Fédération Dentaire Internationale.

The Council shall consist of the nine titular members elected by the Congress and of additional members chosen after consultation with the National Committees. Their powers shall expire with the next Congress. The Council will be administered by its Officers and represent the profession without any distinction as to nationality.

The Officers will remain in office until the next meeting to be held in England in August, 1901.

The Executive Council shall draw up a scheme of regulations to be adopted at the next meeting and shall fix the time and place of the next Congress. The Council has appointed and will add to the number of the International Educational Committee as well as such other Committees as may be deemed necessary.

The Committee on Education is composed as follows

Aguilar, of Madrid; Arkovy, of Buda-Pesth; Brophy, of Chicago; Burne, of Sydney; Cunningham, of Cambridge; Godon, of Paris; Grevers, of Amsterdam; Guillermin, of Geneva; Giuria, of Genoa; Hesse, of Leipzig; Kirk, of Philadelphia; Limberg, of St. Petersburg; Martinier, of Paris; Paterson, of London; Queudot, of Paris; Rosenthal, of Brussels; Sandstedt, of Stockholm.

The Officers are ex-officio members of all Committees and will direct them until each Committee is constituted.

A sub-Committee of three Members was appointed to prepare and draw up a report on a scheme of regulations.

A report will also be prepared by the sub-Committee on the organization of the Committee on Education and will be laid before the Meeting in England.

The Executive Council will hold its next meeting in England, in August, 1901, at the same time as the Annual General Meeting of the British Dental Association.

The sub-Committee, composed of M.M. Cunningham, of Cambridge, Godon and Sauvez, held its first meeting on the 28th of November. Several resolutions were passed, among which should be mentioned the foundation of an International Review, which will be published in December and contain the official Reports of the Executive Council of the International Dental Federation.

The sub-Committee also resolved to issue to the Presidents and Secretaries of the National Committees a list of the resolutions passed at the closing sitting of the Congress.

HARVEIAN SOCIETY OF LONDON.

Mr. W. H. Dolamore read a paper to the Harveian Society of London on "The Deciduous Dentition as a Factor in the Health of the Child." He said he thought the importance of this dentition was hardly sufficiently recognised, and he proposed to emphasise this by, first, considering the part played by the septic condition of the mouth, induced by caries of the teeth, as a predisposing or exciting cause of diseases in the child. Of these he mentioned ulcerative stomatitis, necrosis of bone and enlarged lymphatic glands, which latter might become the seat of tuberculous growth, whence the system might be generally infected. He also was of opinion that if in an adult gastric and intestinal diseases would be due to oral sepsis, *a fortiori* this would also be the case in a child. Secondly, he referred to the fact that for eight years, between the ages of two and ten, the child is dependent on the deciduous teeth for the important part which the mastication of food plays in the nutrition of the child, and that hence these teeth should, from the beginning, be regularly cleansed and caries arrested in its early stages. To emphasize these points he quoted statistics comparing the growth of a child during the eight years, two to ten, with a like second period, ten to eighteen. These figures showed the ratio of growth of the first to the second period to be for a male child, 75 to 61; for a female, 75 to 42; whilst the fact that, in spite of decreased growth, the child during the second period increased in weight far more than during the first, suggested, he considered, that during the earlier period of nutrition of the child was not in excess of its absolute need. He drew from these data the conclusion that the mastication of food cannot be interfered with by the decay and extraction of deciduous teeth without impairing the health of the child. He suggested that the matter was of sufficient importance to merit the attention of school authorities, especially of such as have to do with the children of the poor.

Dr. Cock, after thanking the author for his most interesting and valuable paper, emphasized the points of earliest cleanliness with the use of tooth the brush, and the absolute necessity of examination, also from an early period, of the deciduous teeth by a dental surgeon.

Mr. SEFTON SEWILL said that he cordially agreed with the reader of the paper in his conclusions. It was quite pitiable to see the terrible wrecks presented by the mouths of most young children brought to hospitals. Ignorance of the importance of systematic treatment of deciduous teeth was, however, confined by no means to the poorer classes; many parents of good social position being surprised to learn that it was possible to treat temporary teeth conservatively. It was important to fill temporary teeth as soon as decay was perceived, said onset of root absorption precluding in most instances the possibility of saving them after the pulp had become exposed. He could see no reason to doubt that temporary teeth were as fertile a source of general systemic trouble as those of the permanent set, but though as regards these latter, the part played by them was generally realised, he believed that even in so excellent a paper as that by Dr. Wm. Hunter, read before the Odontological Society, no mention had been made of the temporary teeth. It rested largely with the medical practitioner to advise parents of the importance of attending to their children's temporary teeth.

CLAIM AGAINST A DENTIST.

Mr. Kelvnae, instructed by Mr. J. W. Abigail, for the plaintiff; Mr. Scholes, instructed by Messrs. Rose and Peyton for the defendant.

Henry Forster, of the Livingstone Hotel, New Canterbury Road, Petersham, sued C. Davis, of Toothill Street, Lewisham, dentist, for £200 damages, for that the plaintiff engaged defendant to manufacture and set and adjust certain teeth for the plaintiff for reward, and the plaintiff paid the said reward, and yet the defendant, it was alleged, so negligently, carelessly, and unskillfully conducted himself in and about the making and setting and adjusting of the said teeth that they were useless to the plaintiff, and the plaintiff's jaw was permanently injured, and a cancerous growth was caused to grow on the plaintiff's jaw, and the plaintiff was made sick for a long time, and he was prevented from attend-

ing to his business, and lost the reward so paid. The defence was "Not guilty."

His Honour said he found that the plaintiff was entitled to £50, with costs on the higher scale.

GWYDER DENTAL COMPANY, LIMITED.

Registered on May 29, by W. P. Davies, 28a Westbourne grove, W., with a capital of £100 in £1 shares. Object, to acquire and carry on the business of a manufacturer of and dealer in artificial teeth, carried on by A. V. Mayes at 24, Station Road, Llanwrst, Denbigh, as Barter and Mayes, to extract, scale, fill, stop, and attend to natural teeth, to manufacture and deal in dental, surgical, and anatomical apparatus and appliances, and to secure the services of qualified surgeon dentists, medical practitioners, and chemists. No initial public issue. Registered without articles of association.

THE INCORPORATED DENTAL HOSPITAL OF IRELAND.

The bestowal of prizes upon successful students was made the occasion of giving an agreeable evening conversazione in the large laboratory of the hospital, and as all arrangements and decorations were carried out under the direct superintendence of the "Lady Superior," Mrs. Manning, it is needless to say that everything connected with the entertainment was thoroughly well done. The temporary *salon* was handsomely carpeted and furnished, and refreshments were served in profusion on two different floors. Madame Shellard, Mrs. George Murray, Mr. Rogers, and Mr. J. J. Farrell, contributed a short programme of music.

ACTION TO RECOVER FEES.

At the City of London Court, Messrs. M. and D. M. Humby, dentists, 88, Newgate Street, claimed £4 4s. for professional services rendered to Mr. J. Stevenson, Elphinstone Road, Hastings. The defendant said that he went to the plaintiffs to have two artificial teeth put in. He made an arrangement that he was to be charged a fee of £2 2s., which he thought, was quite enough for two teeth. The plaintiffs had sent him in a bill for five and a half guineas. He returned the bill, and the plaintiffs then said that they would be content with the two guineas. Since then they had refused to accept the sum. Now that they had sued him he had paid it into Court, Mr. Humby denied that any arrangement to supply two teeth for so small a figure as as two guineas was ever arrived at. Mr. Commissioner Kerr said it was oath against oath. Personally he thought that £2 2s., was amply sufficient. If the plaintiffs chose to have the points submitted to a jury they might do so. The plaintiffs said they preferred to go before a jury. The case was adjourned for that to be done.

APPOINTMENTS.

At a meeting of the Committee of the Liverpool Dental Hospital, Mr. T. W. Widdowson, L.D.S. Eng., was appointed House Surgeon for the ensuing six months.

Mr. Claude Hamilton Huckle, a dental surgeon, has succeeded to the vacancy on the Rye Town Council, caused by the death of Alderman Holmes.

THE SUCCESSFUL DENTIST.

In order to become a successful dentist two qualifications are absolutely necessary, and these are thoroughness and strict attention to business. These are the primary requirements in any profession. But for dentistry something more is demanded. Possibly there is nothing that will ensure a greater degree of success in this profession gentleness and the utmost neatness. There are to-day many dentists who wonder why they do not have more business, who would be surprised if some of their patients were to tell them that it was out of the question to endure their personal untidiness. First of all, the hands must be immaculately clean, the finger-nails well

kept, and the hands soft and agreeable to the patient. The person should also receive the most careful attention, and no odour of perspiration or food must be perceptible, and above all things no suggestion of tobacco or liquor.

Some of the most popular dentists are so particular that they keep a special suit of clothes for wear in their consulting-room, and on no account will they smoke or indulge in a glass of wine until after office hours. These men have their waiting-rooms full of patients. They are skilful dentists, in the first place, but in addition to their skill, they have learned the secret of being personally agreeable, and are willing to cut off some little indulgences so that they may not offend ultra-fastidious patients. Extreme personal neatness seems but a small factor in business success, but many a delicate person has changed doctor and dentist because of a lack of care in this particular. One man left a dentist who had done his work for years simply because the dentist had such a bad breath that the patient could not endure it. All other things being equal, the dentist or doctor who is noted for gentleness, hands that are immaculate, and a breath free from disagreeable suggestions, will have patients two to one more than his untidy, rough, and ill-smelling neighbour.—*Family Doctor*.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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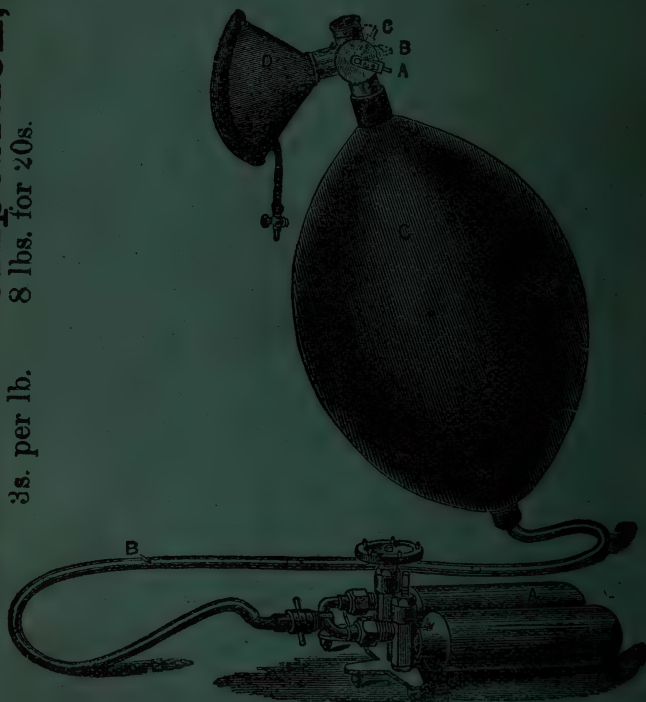
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THE
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"INDEPENDENCE AND LIBERALITY."

VOL. XLIV.—No. 803

JULY 1, 1901.

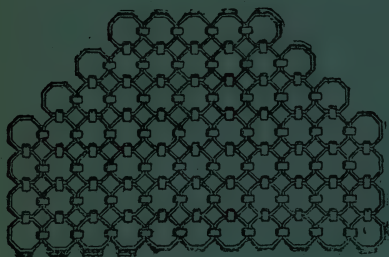
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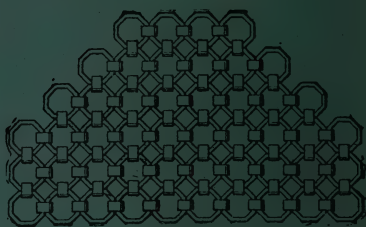
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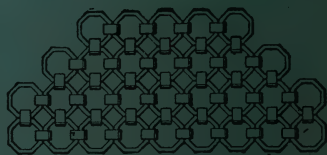
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This Journal is published **TWICE A MONTH**, on the 1st and 15th.

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The Journal is supplied direct from the Office, to any part of the world, post free, for 14s. per annum, 7s. Six Months, 3s. 6d. per Quarter, payable in advance.

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A month's notice should be given in writing by subscribers wishing to terminate their subscription before the end of the year. All subscribers not giving such notice will be considered subscribers for the following year.

Cheques, Post Office Orders, or Postal Orders should be crossed and made payable to the order of G. E. SKLIROS, 289 & 291, REGENT STREET, W.

NOTICE TO ADVERTISERS. Letters for advertisements appearing in our Journal are allowed to be addressed, free of charge, at our office, c/o us, for yearly Subscribers only. The Subscriber's name must always be given to us, in confidence. All advertisements must be prepaid to insure insertion.

SITUATIONS WANTED.

- L.D.S. Eng., 1899, requires Assistantship with view to Partnership. Small capital. "G.," 200, Wandsworth Bridge Road, Fulham.
- As Operating and Mechanical Assistant. Plate and vulcanite. Good references. Permanency. W. Baxter, Swansfield Park Road, Alnwick.
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- An L.D.S. Eng. desires an appointment as Operating Assistant, or as locum tenens, has had large experience. "A. B.," c/o Segg & Co., 289 & 291, Regent Street, W.
- Operator disengaged. Locum or otherwise till September. Nominal remuneration accepted. Sold practice. Experienced. "Cymro," c/o Segg & Co., 289, Regent Street, W.
- L.D.S. desires situation as surgical Assistant. "E.," c/o Segg & Co., 289, Regent Street, W.
- Operating and Mechanical, has had entire management of Practice. Seaside preferred. George Goodbody, 4, Southolm Street, Battersea Park.
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- By Mechanical and Surgical Assistant. Age 27. Experienced. Highest references. Apply "X.," c/o Segg & Co., 289, Regent Street, W.
- Management by experienced Registered Operator and Mechanic. Permanency. Salary and commission. London preferred. Address "P.," c/o Segg & Co., Regent Street, W.
- Young man lately representing Dental manufacturers, is open for appointment as representative. Excellent references. Address "L. B.," c/o J. P. Segg & Co., 289, Regent Street, London, W.

A YOUNG Qualified Gentleman Wanted as Operating and Mechanical Assistant, on or about August 31st, with a view to taking $\frac{1}{4}$ share in Practice at an early date. Junior Mechanic kept. Large and busy town 36 miles from London. Address with full particulars of age, experience, qualification and salary expected, to "Licentiate," c/o Segg & Co., 289, Regent Street, London.

WANTED good Operator and Mechanic, able to take charge of branch practices at times. Must have good references. Permanency to good all-round man. Salary £2 and commission. Apply to "Leo," c/o J. P. Segg & Co., 289, Regent Street, London, W.

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£140 will purchase a newly established Dental Practice, including all furniture, dental chair, engine, Allen's table, and Felchow's reflector, and show cases (Sages), every thing quite new. Work-room fitted up with all requisites. Good reasons given for wishing to dispose of same. Apply on the premises, 20, South Side, Clapham Common, S.W. between 9 and 11 a.m.

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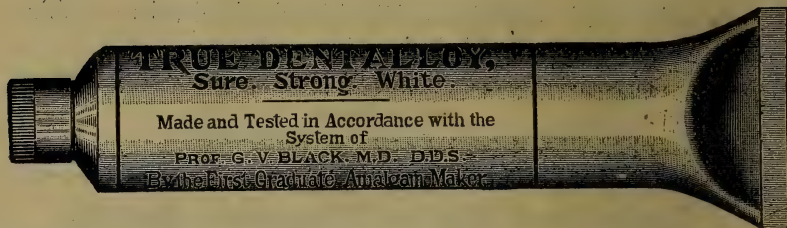
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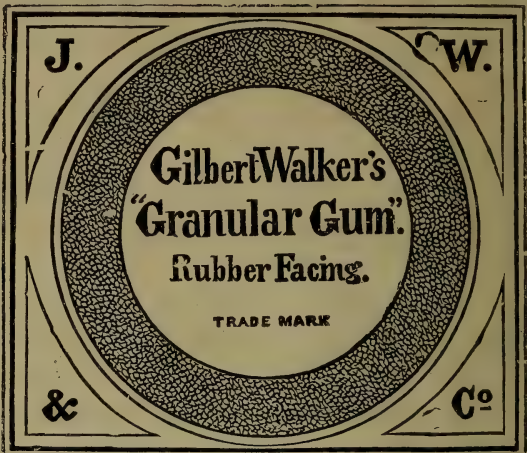
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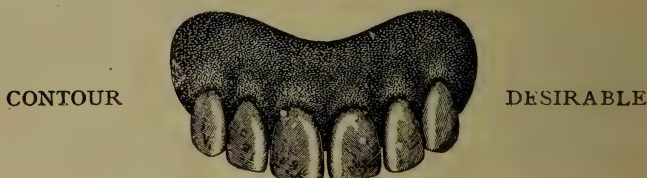
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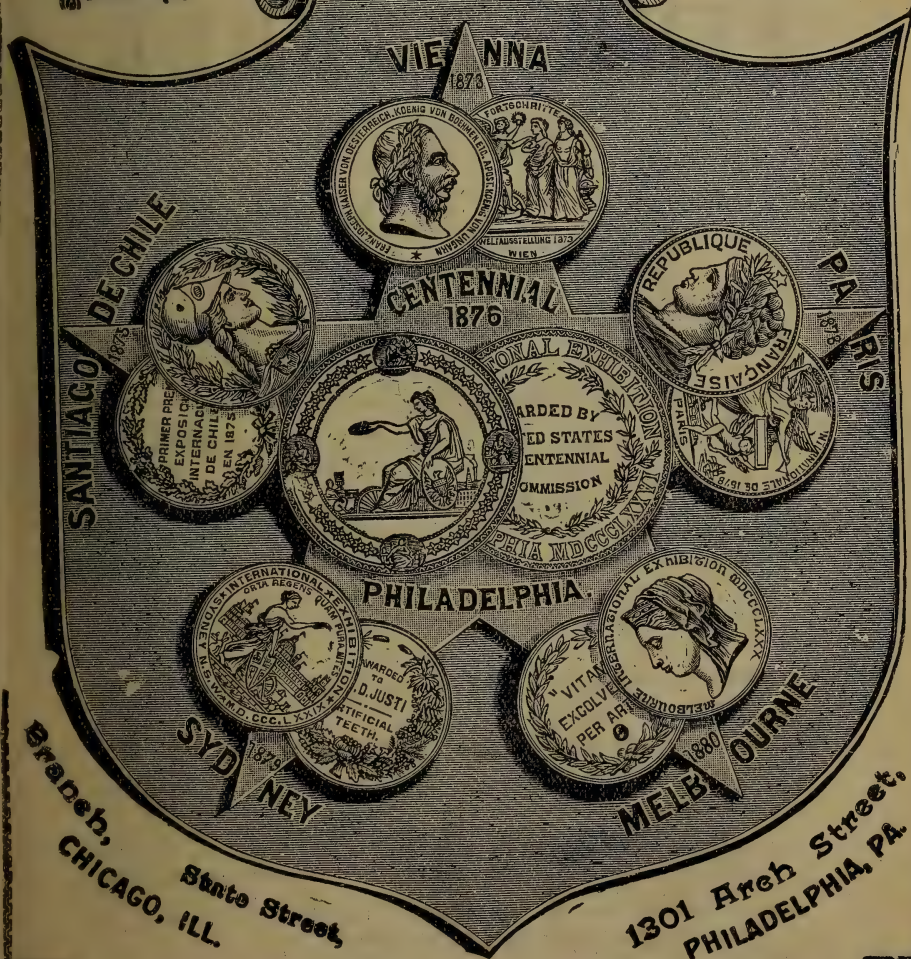
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British Journal of Dental Science

No. 803. LONDON, JULY 1, 1901. Vol. XIIV.

THE DEVELOPMENT OF THE PULP NODULE.*

By D. E. CAUSH, L.D.S.I.

Amongst the many and varied factors connected with the development of hard tissues, there is probably none more interesting than that of the development of secondary dentine; and in the development of the latter there is one question that has often puzzled the student as well as the more advanced thinker, and that is, Why is the microscopic structure of the pulp nodule usually so different from that of secondary dentine?

In our endeavour to answer this interesting question we will commence by making a microscopic examination of a tooth in which we have diagnosed pulp nodules, and make a section with the hard and soft tissue combined. We shall at once see a great difference between such a section and one of the tooth in which secondary dentine has been formed, whether for the purpose of resisting the attack upon the pulp as caused by decay, softening of the dentine, or where erosion has had the opportunity of leaving its permanent marks; or if we examine the section of a tooth worn down by friction resulting from mastication or attrition.

* Transactions of the Odontological Society of Great Britain.

In all these cases we usually have a more or less pronounced deposit of secondary dentine, either in the pulp chamber or in the pulp canals. This new deposit is always caused by more or less pronounced irritation from the *exterior* of the tooth or pulp, and the microscopic character of the new tissue corresponds usually to the structure as found in normal dentine, having tubuli often corresponding and associated directly with the tubuli of the dentine.

It would appear as if this new tissue had been Nature's method of defending herself from the attacks of the enemy from without, as the new tissue has been deposited by those cells surrounding the pulp itself, whose duty it is to protect the delicate pulp with its ramification of nerves, blood-vessels, &c., from external irritation; but in the development of the nodules of bone in the pulp this is not the case; the condition of the dentine does not appear to be a factor in the development of these nodules as the irritation which eventually produces the pulp nodule is produced in the pulp tissue itself.

On examining a tooth there is nothing in the external appearance to suggest the existence of even the smallest of pulp stones, nor can we take into consideration as a factor the age or sex of patients in the development of this tissue, as these nodules are to be found in the teeth of patients in their teens as well as in those of advanced age, and in many cases producing as much pain in the youngest as in those of old age; the result of my examinations tend to show that the position of the nodule is usually the cause of the pain produced.

External appearance.—In external appearance the nodules vary from a small more or less globular, or oval, structure to that of any size or shape, controlled only by the size of

that portion of the canal or chamber in which they are found. Thus, we have them from a minute point to those entirely filling the pulp chamber, and in teeth of two or more roots it is not unusual to find them not only filling the pulp chamber, but with spines of hard tissue passing into the various canals, and thus producing the most irregular-shaped nodules.

Their position is almost as varied as their outline, for as I have already said we may find them in the pulp canals, and pulp chambers, quite free from the surrounding dentine, or we may find them attached to the sides of the pulp canals, and quite surrounded by the dentine : we may, as I have said, find them anywhere in the pulp itself, from the entrance of the pulp at the apex of the root to the extreme end of the pulp chamber. It is not the largest of these that cause the greatest amount of pain, as the pain is produced by the position and not by the size of the nodule ; thus a small nodule near the apex of the canal will probably produce pain by the constriction of the pulp and as a consequence pressure upon the nerves, whilst a nodule much larger in size (unless there is pressure produced upon the nerves) may almost entirely fill the pulp chamber without producing any discomfort. Though their size, shape and position may vary very much, such is not the case with regard to their microscopic structure. All the nodules I have examined have a somewhat similar structure when viewed by the microscope. We have usually in the centre or somewhere near the centre, of the developed tissue, a space, more or less pronounced, and it is at this point that the nodule has its origin ; it grows outwardly, and radiating from this point there are usually a number of more or less concentric rings caused by additional layers of calcified tissue, it is in this way a nodule increases in size ; this may continue until two or more nodules touch each other and become united into one, thus forming a compound nodule

large and irregular in shape. Its structure, as thus seen, is quite different from either ordinary or secondary dentine, we may sometimes find a few isolated irregular tubuli, but rarely do we find any tubuli approaching the character of those seen in secondary dentine ; this may be accounted for by the fact that its origin is generally some distance from the odontoblastic layer, and the nodule is developed from a different layer of cells from that of secondary dentine. Its position would imply that no odontoblasts had taken part in its development, and if this is so a very interesting question arises as to how these tubuli, if they are tubuli, are produced. The origin of the development of the nodule is some irritation *in the pulp itself*, and I believe the primary object of the nodule is to cover up, by calcification, some substance that has been the cause of irritation in the pulp tissue ; its structure as well as its mode of development would lend itself to this supposition, for under the microscope we have a structure similar in appearance, and I believe identical in its mode of development to that of the pearl found in the oyster, the origin of the pearl being a foreign body found in the mantle of the mollusc. As it is impossible for the oyster to get rid of this foreign body by absorption, it builds around this cause of irritation that which is known to us as the pearl. So in the development of the pulp nodule the same has occurred, Nature has found in that delicate and complicated structure, the pulp, something it cannot get rid of, something it cannot absorb, something out of its place, and the irritation produced by this something causes the pulp to endeavour to get rid of it ; as, however, it cannot absorb it, there is nothing for it to do but to encyst it.

If this is the true origin of the pulp nodule, we ought to be able to find in some pulps, as a result of microscopic examination, the exciting cause, and this exciting cause is, I believe, to be found in either a dead cell or cells, or perhaps

a few blood corpuscles that have by some means escaped from their ordinary course, either by the rupture of one of the capillaries or small blood vessels abounding in the pulp; such an accident may occur by a sudden shock to the tooth, or again the corpuscles may be found out of their place as a result of the breaking down of some of the smaller arteries, veins, or even the capillaries, by disease such as the pulp is exposed to.

I think the former method is the one that usually causes the development of pulp nodules in our younger patients, whilst undoubtedly the changes in the pulp lend themselves to the development of these nodules as age advances. We will suppose from either of the above, or some similar cause, that such a change has taken place in the pulp, and as a result there will be irritation of a more or less pronounced character in this tissue, produced by what has become a foreign body; there are no lymphatics for the re-absorption of this body, it does not require a very great stretch of the imagination to trace the growth of the pulp nodule on the lines laid down. The course followed would, I believe, be somewhat as follows:—

The irritation produced by the foreign body causes an increased activity in the blood-vessels surrounding the cause of the irritation, and, as a necessary consequence, an increase of formative material brought to hand. This material is taken out of the blood by the surrounding cells, and it becomes a very simple matter for these cells to cover up the cause of the irritation by a deposition of hard tissue. This probably occurs as follows: The increased blood supply, produced by the irritation, causes immediate activity in the cells surrounding the cause of irritation, and the result of the activity is to produce a number of new cells. The pressure produced by this increase in the number of cells again increases the blood supply, and after a time the cells deposit

a hard tissue in the same manner as the cementum is produced. As the deposition takes place in very small quantities, and probably very slowly, we have a more or less perfectly calcified and, as a consequence, homogeneous deposition. This accounts for the structureless character of the nodule.

Again, we sometimes have a larger mass more rapidly formed, and perhaps nearer, or even including some of the odontoblasts in the newly-forming mass. We shall then have variations in the structure, consisting of lacunæ with canaliculi, irregular spaces, and a few markings like the tabuli of dentine. As the calcification of these cells continues, we shall have an increase in the size of the nodule; in some cases this increase in size causes a further irritation of the surrounding pulp tissue, and thus a constant supply of fresh formative material is brought to the cells. The increase of size eventually produces pressure upon the nerves of the pulp and, as a consequence, frequently the most acute pain is experienced; this is the course, I believe, of the pulp nodule when surrounded by pulp tissue.

There is yet another class of nodule; though previously mentioned, it may be interesting to briefly follow its history. I refer to those nodules attached to the dentine. We may also, if we are fairly successful in our search, find them not only attached at one side, but entirely surrounded by dentine, and that at some little distance from the pulp canal; wherever I have found these they have always been near the apex of the root and imbedded in the last formed dentine; and this, I think, gives the key to the explanation of the position in which the nodules are found.

At the time the cutting edge of the tooth is passing through the gums the apex of the root is in an uncalcified condition, and with a new tooth in this position it is much more subject to a shock than it will be after it is fully erupted; as a consequence, we have a nodule formed in

precisely the same manner as those formed in the pulp tissue, with this exception, those found in the pulp tissue are always formed *after* the calcification of the dentine has taken place ; whilst the latter class are formed *prior* to the calcification of the tooth, and when first formed are surrounded by uncalcified dentine. Any careful examination of a tooth with nodules in this position will fully illustrate my meaning, as the tubuli of the dentine will be found to be bent around the nodule, proving the nodule *must* have been formed prior to the calcification of the dentine. If it had been otherwise, and the dentine had been absorbed to make a space for the nodule, we should then have found the tubuli ending abruptly at or near the margin of the nodule, but this is not the case.

This will also account for nodules found in the pulp canals but attached to the dentine, and here, I believe, the development has been the same as in nodules surrounded by dentine.

A CASE IN PRACTICE.*

By F. E. MOODY, D.M.D., Minneapolis, Minnesota.

The modern profession of Dentistry exacts from its followers a high degree of learning and native skill, to say nothing of quick action, good judgment, precision of movement and careful discretion. Dentistry is a science. It comprehends something more than the mere mechanical process of tooth pulling and tooth filling. It includes a technical knowledge of the human anatomy, and the diseases, affections and injuries of the jawbone. The dentist is ever confronted with trying situations. He has to put up with

* Read before the Minnesota State Dental Society, and published in the *Dental Record*.

more than mere inconveniences. He has to encounter the possible dangers of a fractured jawbone, paralysis of the face, even blood poisoning, and many other complications, all of which you of the cult are familiar.

If a dentist is negligent in operating upon a patient, or fails to exercise reasonable care, he is certainly liable to the patient who has suffered injuries by reason of such negligence.

It is often the case that a dentist is subjected to the aggravation of a lawsuit, which has been brought by a patient who fancies he has been injured by the dentist, or who thinks he may get a large verdict against the dentist whether or not he had been negligent. I have recently passed through such an experience.

In October last (1899) one of my patients of this city, a man about thirty years of age, came to me for the removal of his left lower wisdom tooth. His face and jaw were badly swollen, and he was evidently in great agony. He could open his mouth but a very little. His voice was low and it seemed hard for him to talk at all.

The patient had just returned from a hunting trip of two weeks' duration. He stated that he had been suffering with the tooth eight or nine days; that he had fainted on the previous Sunday (this was Thursday) and went into a regular spasm which made him so rigid that it caused his three companions several hours' hard work to bring him to consciousness. He stated further that he had not had any sleep or nourishment for several days. He looked weak and nervous. He wanted immediate relief, and in specific terms requested me to remove the tooth in question.

I was exceedingly busy at the time, having a patient in my operating chair with a gold filling half done, and several others in waiting. In view of this I told the gentleman that I did not see how I could administer to his relief at once, and that he would have to wait or come again. He begged

me to do what I could for him as soon as possible. So I requested my lady assistant to place him on the couch in my private room that he might rest until I could do something for him. Within a few minutes he began to toss from side to side, making agonizing complaints and outcries. Knowing him to be in intense pain, I hurried to get the filling that I was working at finished. I excused myself from the patients who had the prior engagements, explaining to them that the gentleman required immediate attention by reason of his painful condition.

Succeeding in thus disposing of the other patients, I made preparations for relieving, and, if necessary, for operating upon the patient, whose pain seemed the more aggravated as time passed. I placed him in my chair and found that his mouth could not be opened for diagnosis until I had applied hot cloths to his face for about fifteen or twenty minutes. I then succeeded in getting his mouth open so as to enable me to examine in the region of the lower wisdom tooth. I discovered that the tooth had not erupted; the mouth had foetid odour; the mucous membrane over the tooth was very much inflamed, pus being present between its folds. I was prevented from making further examinations by the patient, who, to use his own words, said he could not stand it, and wanted me to give him an anæsthetic. I just stated that his mouth could not be opened but a very little owing to the inflamed condition of his face, so that I could not administer gas. I sent my assistant to a physician, who has offices on the same floor with me, to see if he could give the patient a general anæsthetic. This he agreed to do if the patient could stand it. The patient was taken into his suite, examined by the physician, who decided to give him chloroform.

After having the patient fully anæsthetized, I examined the mouth very closely, cut away the tissues over the crown of

the tooth and reflected the alveolar process so that I could see at what angle the tooth was placed. I found that the entire tooth, with the exception of the disto buccal cusp, was underneath the process and the mesial occlusal angle under the crown of the second molar at an angle of at least 50 degrees. I saw immediately that the task of removing the tooth was not an easy one. For, owing to its abnormal position, it was evident that any force applied in extracting would, according to the directions in which it was applied, tend either to fracture the tooth, the jawbone, the inferior dental nerve or raise the second molar under whose crown the tooth partially lay. I made various attempts at removing the tooth without dislodging the second molar, but finally concluded that the only way to remove it without endangering fractures was to take out the obstructing molar first. This I did. Then the wisdom tooth was very easily extracted.

The question naturally arises now, why extract the wisdom tooth? I stated above that the angle of the tooth to the jawbone was about 50 degrees out of the normal, so the tooth would have been of no use to the patient in mastication and it might have always been the seat of more or less irritation. I found on its removal what I had feared, namely, the formation of large abscesses at the apical ends of the roots. He was greatly relieved after the operation. The inflammation and swelling disappeared gradually and he was soon tending to his daily affairs as usual.

It was under this state of facts that an action was instituted against me for the recovery of 3,070,00 dollars for injuries sustained by reason of alleged unskilful manner in which I, the defendant, extracted a tooth from the lower jaw of the plaintiff, and for extraction of a tooth I was not directed to extract, and for the pain and suffering which it was alleged were sustained.

The plaintiff in his pleadings assumed that I, the defendant,

was negligent and unskilful as a dentist in removing the wisdom tooth and that as a matter of law I had no right to remove the second molar. It was claimed also, that the left jawbone of plaintiff was fractured and crushed through my negligence. These allegations went entirely to the manner in which the operation was performed, and was a matter of fact for the jury.

It was also alleged that the teeth were extracted carelessly, and that the chloroform was administered negligently and recklessly. Also that upon plaintiff's return to consciousness he desired to summon a physician and that I refused him this privilege. There was no evidence to support these latter allegations, and the court so charged.

It was further charged that by reason of my negligence, paralysis of the nerves and muscles of the left side of plaintiff's face was caused.

It may be observed that plaintiff's case rested purely on the question of my negligence in the premises. The court charged, as a matter of law, that negligence is a failure to do that which an ordinary careful and prudent person would have done under like circumstances. A physician and surgeon is held to a reasonable amount of diligence, unless he contracts to do more, and is liable only for injuries that result from his neglect to exercise that degree of diligence and skill. Nor is he expected to come up to the highest standard of skill known to the profession, for mental genius, knowledge, industry, learning and experience, may enable some of his brothers to attain a prominence that is not expected in the great majority.

As to the manner in which the wisdom tooth was extracted a half dozen or more witnesses testified that it was done in a careful and skilful manner. A number of expert witnesses testified that my treatment of the jaw was correct and adequate. It was charged that if it was found that plaintiff

employed defendant to remove the wisdom tooth, and good surgery required the removal of the adjoining molar, then the defendant had a right to remove that tooth, and would not be chargeable in damages for removing it.

Expert witnesses testified that removal of the molar was necessary under the circumstances and conditions as shown by other evidence in the case. As a matter of law it may be said that where one tooth is in juxtaposition with another tooth, and the relationships of these teeth are such as to prevent the removal of one without the removal of the other, or if good surgery requires the removal of both, the dental surgeon is justified in removing both, although expressly authorized to extract but the one.

The judge in this case said that he did not expect the jury to remain out longer than fifteen or twenty minutes. And in accordance to this expectation, the jury was out but a few minutes, returning a verdict for the defendant.

The case teaches us a number of things. It shows when ethics may be brought into good use. It teaches us that the dentist is bound to use the "eternal eye of vigilance." I did all in my power for the patient, and took particular precautions, knowing the severity of the case. I was especially fortunate in having called a physician to administer the anæsthetic. He was witness of the fact, and his testimony did much toward obtaining a favourable verdict. Had I been alone, perhaps the shrewd manipulators of the law might have shown a preponderance of evidence against me. But this is not even probable, as the testimony of experts, who were not eye witnesses, showed that my *modus operandi* was in accordance to recognized and approved methods.

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LONDON, JULY 1, 1901.

THE GENERAL MEDICAL COUNCIL.

The General Medical Council is to be congratulated on finishing its sitting in considerably less time than usual, and as time is money, and as the finances of the Council are anything but satisfactory, this is a move in the right direction. The amount of work accomplished was considerable and varied, and shows that the powers of the Council are becoming more widely used. Although much was done, much was left undone, especially as regards the deadlock between the Royal Colleges and the Council in the matter of recognition of Schools for the teaching of preliminary science, and in the matter of the Council's finances. In the latter instance the services of an expert had been requisitioned, but the Council did not follow his advice or even discuss it.

As regards professional discipline and ethics the Council spoke with no uncertain voice. A Naval Surgeon was removed from the Register as he had been found guilty as a co-respondent in a Divorce case, the respondent being a woman he had attended professionally. Three dentists charged with advertising "in an objectionable way" were not proceeded against to the extent of having their names removed from the Register, on their giving an undertaking to withdraw objectionable advertisements, and to abide by the expression of views of the Council on the subject of advertising in general. These views, it may be said, seem to be that the only "unobjectionable" advertisements are those consisting of the name and address simply of the advertiser. We are

heartily glad that the Council is taking these steps, as the advertising man, besides being unprofessional, is an unfair competitor against a large body of non-advertising men; many who advertise would gladly discontinue this practice if they could be sure that their competitors would do the same. The way that some dentists advertise is a scandal, and if the law could only touch the Limited Companies, who are the worst offenders, a great change for the better would immediately set in. Unfortunately this does not seem feasible without an amendment to the Dentists' Act, and this seems as far off as ever.

Another case which is of considerable interest is one in which the dentist was summoned to appear before the Council, because in his absence his wife performed a dental operation. The husband was in fact "covering" his wife. As the complainant—the dentist's brother—did not appear, and as it was not proved that the dentist had any knowledge of what his wife had done, and as no other performance of a dental operation by the wife (other than dressing teeth for him when he was busy) was proved, the Council acquitted the defendant. A curious fact in the case was that the defendant had two practices as far apart as Southampton and Manchester, and practised a fortnight at each alternately. He admitted he did this "to his sorrow," and we are not surprised.

The other disciplinary case was one in which a registered dentist used the letters R.D.S. after his name, having formerly used the description R.D.S., R.C.S. Eng. We have pointed out many times in these columns that there is no such title as R.D.S., which is used as a colourable imitation of L.D.S., and is calculated to deceive the public. To attach the "R.C.S. Eng.," is nothing less than a falsehood, for the Royal College of Surgeons has nothing whatever to do with the registration of dental surgeons or of any one else. The defendant apologised and gave a guarantee not to offend again, but as he did not appear the case was postponed until the November Session, at which time the Council would expect him to appear.

There was an application from the University of Birmingham asking that its new degrees in dentistry might be recognised. This cannot be done at present through a technical difficulty. Personation of deceased or retired practitioners has been made more difficult, and the process of levelling up the preliminary examination was advanced a stage. On the whole we may congratulate the Council on "Something attempted, something done."

MUSICAL DENTISTRY.—A correspondent of the *Lancet* explains the part which M. Laborde thinks musical sensations are destined to fill in surgical anæsthesia. It is a well-known fact that patients under the influence of nitrous oxide (laughing gas) often exhibit manifestations of terror accompanied by screams and struggles. Having ascertained that these phenomena of terror have for their origin external noises of greater or less intensity, such as those caused by vehicles, M. Drosner, a dentist, had the idea that during anæsthesia harmonious sounds produced by a graphophone might be substituted for casual noises. Of course, no sensation of pain was experienced during the dental operations performed under these conditions; but, in addition to this, all the patients asserted that during the whole of the proceedings they were conscious of the charm of the music and were free from dreaming and nightmare. These results may be easily explained. The question, in fact, is one of an influence exerted directly on the brain centres for musical sensations; and these latter modify in a favourable manner the action of the anæsthetic, substituting the influence of a musical dreamy state for that of a terrifying one. This method may, perhaps, says the *Lancet*, be extended to surgical anæsthesia in general, even in combination with anæsthetics such as chloroform and ether, the action of which on the brain centres often produces, as is well known, manifestations which disturb the surgeon in his work.

SOUTHAMPTON WORKHOUSE DENTIST.—The Workhouse Committee recommended that the salary of Mr. D. K. Whitlock, the dentist, be increased from £10 10s. to £15 15s. per annum, in consideration of the efficient manner in which he discharged his duties.—Mr. C. G. Thomas proposed the adoption of the recommendation, and Mr. Cole seconded.—Mr. Austin objected, saying that Mr. Whitlock's visits to the House were so few that he received an average payment of £1 1s. per visit.—Mr. Hallum said he did not consider that this was a time to increase salaries, even to the extent of £5 a year. They could even do without a dentist at all. While the rates remained at 10s. 1d. in the pound he should positively refuse to vote for any increase of salary.—Dr. O'Meara said the Local Government Board ordered them to appoint a dentist, and Mr. Austin's statement as to the amount of work done by Mr. Whitlock was incorrect, because he visited the schools every fortnight, stopping teeth as well as extracting.—The recommendation was carried by 10 votes to 7.

HIGHER DEGREES.—The *Birmingham Argus* says, "When a little technical difficulty with reference to examinations is overcome, there seems little doubt that the General Medical Council will recognise the degree of dentistry of the University of Birmingham. The University does not propose to grant its degree to any candidate who has not at least twelve months previously obtained a licence in dental surgery from some body legally entitled to confer such qualification, and will require from him additional study and the passing of additional examinations, so that the degree will be in the nature of a higher qualification, and therefore comes under a special section of the Dentists' Act."

AN EYE FOR A TOOTH.—At Worcester, an extraordinary accident has befallen Mr. Saddler, a dentist, while extracting teeth at Worcester Infirmary. A tooth suddenly shot from his forceps and struck his right eye, completely destroying the sight. The sight of his other eye was already defective.

and this sad misfortune has rendered Mr. Saddler quite incapable of further professional work. The committee of the infirmary has voted a sum of money to him by way of compensation.

ATTEMPTED SUICIDE THROUGH TEETH.—A Poplar youth named Latham, who tried to strangle himself with a silk handkerchief, gave as a reason that he had failed to get work, and could not enter the Army on account of having bad teeth.

DENTISTS AND GUARDIANS.—The lady superintendent at St. Edward's School, Totteridge, made an application for the Guardians to allow 6d. per quarter per child for dentistry. The concession was granted subject to the consent of the Local Government Board.

"A DENTIST AND THE DEMI-MONDAINES."—One evening in the earlier part of the week an elegant young man made the acquaintance of a demi-mondaine named Irma de Cavelier on the promenade of the Folies-Bergeres. She said she suffered from her teeth. As the young man was a surgeon-dentist he offered to cure her on the following day. On Wednesday he said he had all the necessaries for dentistry, but had no room of his own, and proposed to see her in the Rue de Breda, where she lived. The first lady who came, for he decided to see his clients in Irma's room, had nothing to complain of, but the second missed a ring of great value after she left; and he had used gas to do her teeth. She complained to the police. Other complaints were also received by those who went to see him. Other ladies missed a ring, a brooch, or money which he stole while they were under the influence of the gas. He was arrested at noon and said his name was Henri Pasteur, aged 26 years, and he admitted having committed the robberies. He was at once sent to prison.

Abstracts of British & Foreign Journals.

BLOCKS OF HARD PORCELAIN FOR FILLING TEETH.*

By Dr. R. CHAUVIN.

The great obstacle to the use of true porcelain lies in the difficulty of obtaining a sufficiently high temperature at which to fuse it. The degrees of resistance of enamels used in dentistry vary from the soft glass to the hardest argillaceous pastes, but containing always in their composition silicates of fusible bases. To-day with the means at our disposal it is not possible to fuse a powder of kaolin or feldspar if it does not contain fusible bases, such as silicates of potassium and sodium. In certain powders we discovered the presence of lead through the black colouration which appeared in the inlays after they had been in the mouth only a short time. These powders, which are easily recognised after they are fused, give a dense enamel, polished and of good appearance. We believe that they were prepared with *debris* of the glass used for optical purposes (the flint glass and crown glass used for the manufacture of optical appliances contains a great quantity of lead salts) that had been coloured by adding pieces of glass bottles such as are used to keep substances from the influence of light.

In formulæ the constituents of which are silica, sodium and calcium, or silica, potassium and calcium, the sodium and potassium enter in the proportion of 12 to 15 per cent. The kaolin of Saint-Vrieix, which enters into this combination, contains only slight traces of sodium. It is evident that better formula could be combined. It should be remarked that none of the enamels in use to-day gives perfect results. In order to obtain a relatively easy fusibility, a condition indispensable on account of the appliances that we have to-

* Read before the International Dental Congress at Paris, 1900.

day, fusible bases which are disintegrated by the fluids of mouth have to be used in the making of enamels.

All those who use porcelain know the difficulties of getting the right shade. When the cavities are labial or buccal the right colour can be obtained and it is hard to distinguish the inlay. The same is not the case when the cavities are interstitial. Here the shadow produced by the neighbouring tooth on the inlay makes the line of junction of porcelain and tooth very conspicuous, and the filling appears darker than tooth. In order to diminish this inherent defect in all porcelain inlays a shade a great deal lighter than the tooth should be selected. The cement should also be of a lighter shade. It is better to use a thick inlay wherever possible. All these details are too well known to insist any longer upon their importance. With a little experience very satisfactory results are obtained, in spite of all difficulties.

The methods of fusing the porcelain whose formula approaches as much as possible that of pure kaolin are not numerous. The White teeth can be fused only in high-heat furnaces. The old practitioners probably remember that the Belgian teeth were a great deal less hard than the White teeth. They had to be fused in high furnaces that had to be lighted the day previous. We have tried to fuse our powder in an earthen furnace heated by gas, and the combustion was intensified by compressed air : yet notwithstanding the intense heat, we could not carry the fusion even to the biscuit state—nevertheless we know that it is only by the aid of oxygen we are enabled to fuse the hard porcelain. Very distinct differences, however, must be recognised as to the way in which the oxygen or the compressed air is used for increasing the heat of the furnace. In our method of procedure we direct the oxyhydrogen flame upon the piece to be fused, it is the only way to obtain a sure result.

The following are the substances which enter into the composition of kaolin and of our powder: *Kaolin*—Silica, alumina, sodium, magnesium, water. *Our Formula for the Powder*—Silica, alumina, iron, calcium, magnesium.

Fusion of the Porcelain by means of Oxygen Appliances. Technique. The appliances necessary for the making of porcelain inlays are : 1. An oxygen reservoir. 2. A blow-pipe. The reservoir that we have devised is composed of a cylinder of cast iron, similar to the one used in general therapeutics for keeping oxygen under pressure ; a differential valve whose principle consists of a marker made of ebony,

which is turned by a differential and retarded movement in such a way that one turn corresponds to an elevation or depression of the marker of half a millimeter. The result is that the effort necessary in order to open the valve is very trifling. Dr. Chauvin went on to describe his reservoir, pointing out its advantages. He then described his blow-pipe, which is composed of a cylindrical tube mounted on a tripod. At the lower third is a hemispherical cupola to which a system of double valves is attached. These two valves consist of one for the oxygen and one for the gas. The essayist gave a lengthy description of his blow-pipe, and spoke further of the advantages to be derived from the use of his improved appliance.

As already said, the temperature at which the porcelain fuses necessitates the use of platinum in the matrix or impression of the cavity. The taking of this impression requires some manual skill. It is harder to take the impression with platinum than with gold, but with a little experience as perfect an impression can be obtained. Platinum is a good material for these matrices, the results are very satisfactory.

In order to take a perfect impression it is indispensable in cavities that are wider at the bottom than at the orifice to give by means of cement such a shape to the cavity that no undercuts will be present. When the cavity is an approximal one the teeth should be sufficiently separated, in order that the impression may come out without being warped.

The piece of platinum foil for the reproduction of the cavity should be of sufficient length to cover the lingual and labial surfaces of the tooth. When the platinum has been introduced into the cavity gradually, always trying not to tear the foil, it is a good thing to press strongly against the margins of the cavity, holding the matrix by the portions covering the lingual and labial sides. When everything is in position the borders of the cavity should be marked by means of an instrument of metal or agate. If the foil does not move in the cavity it can be considered that the impression is a good one. We have said that the tearing of the foil is to be avoided, but this condition is not an absolute one. Often our matrices have been pierced through, yet the inlays did not suffer any change.

The matrix should be prepared in such a way that the platinum should not fuse when in contact with the oxyhydrogen flame. This is done by covering all the platinum, except

the part which represents the cavity, with a paste of calcium carbonate and water. It is then dried gradually over the gas flame. The matrix prepared in this way is ready to receive the porcelain paste. The paste, when introduced into the cavity, must be of a thick consistence. It should fill the concavity completely, for we must take into account the contraction of the material. By proceeding in this way the inlay may require only two burnings, but as a general rule three are necessary. There is no advantage in getting only to the biscuit point in the first burning ; it is better to burn the porcelain completely, so as to avoid at once the further contraction of the material fused. The burning is done directly in the flame. The operation is performed as follows: First, The paste is dried thoroughly and gradually by passing over the flame and withdrawing it in order to allow the vapours of water to escape. When it is well dried there is no danger that it will leave the matrix, and a higher heat can then be applied. Second, The oxygen should be let on progressively by turning the regulating handle. When the paste has undergone a high temperature, and when there is no more risk of cracking, put the porcelain in direct contact with the flame. Third, If the operation has succeeded the porcelain contracts towards the centre. More paste is then added to fill up the spaces between the burned porcelain and the margins. To be sure of the penetration of the porcelain into the most minute fissures, it should be introduced in the more liquid state, and then thicker paste can be added. The inlay is then burned for the second time.

Note that every time that the inlay is burned (after the first burning) its surface should be covered by a slight layer of wet powder. If this precaution is not taken the intense heat developed by the oxygen fractures the inlay in the centre. This accident does not often occur with small inlays, but commonly with large ones. But even if the fracture takes place the inlay can be repaired. Were we to cover all the surface of inlay with porcelain and burn it immediately after, the result would be a failure, for the fracture would be visible. The repair should be made in the following way : The inlay should be finished completely without paying any attention to the fracture. With a very fine grinding wheel the fissure is made as deep as possible, and is filled with a thick paste. The surface of the inlay should also be covered with a thin layer of porcelain and submitted to a new burning.

We will emphasise again the necessity of painting the

platinum matrix with the calcareous paste, which is used to prevent the platinum from fusing; without this precaution the metal would not resist the heat developed by the oxygen. It is very important that the porcelain should be fused exclusively by means of the oxygen portion of the flame. During several months we had many failures from the mixing up of the two flames.

Without desiring to talk of the details of the operation of inserting inlays, we will say that, while the majority of authors who have treated this question, as also many practitioners, neglect the mechanical means for retention and depend entirely on the adhesiveness of the cement, we make regular undercuts in the substance of the inlay.

The author, in conclusion, called attention to the following points. 1. The hardness and resistance of the inlay. 2. The simplicity of the technique and the rapidity with which the inlays are made. 3. The small amount of heat caused by the burning—the use of the oxygen only lasting the time required to pass the porcelain over the flame for a few seconds. 4. The inexpensiveness of the appliances. The installation is so simple that the porcelain work can be made easily in the office.—*Cosmos*.

REGARDING THE CHANGES WHICH TAKE PLACE IN TIN AND GOLD FILLINGS IN THE MOUTH.

By WILLOUGHBY D. MILLER, '79,
Professor Dept. Dentistry, Berlin University, Germany.

Some forty years ago Dr. F. P. Abbott, then practising in Berlin, called the attention of the profession to the advantages of a combination of tin and gold as a filling material for teeth. Dr. Abbott was not, and never claimed to be, the first to make use of the combination; he was, however, the first to introduce it to the profession. After him, I think I may claim to have done more than any one else to extend the use of the material in question.

Dr. Abbott and most others following him prepared the

material by placing a sheet of non-cohesive gold, No. 4, upon a sheet of tin foil, No. 4, cutting it into two to four strips and twisting into a loose roll, with the tin outside. For particulars, however, as to the method of using the material and its advantages, I refer the reader to an article in the *Dental Cosmos*, 1890, page 711, as I wish here only to discuss the changes which take place in the material in the mouth, which have been the subject of so much surmise and concerning which, particularly in America, no conclusion seems as yet to have been arrived at.

It is well known that if we examine an old tin-and-gold filling which has been properly condensed, we will find that neither tin nor gold is visible in the mass. At the time of insertion even softer than non-cohesive gold, it has become nearly as hard as amalgam, and has at the grinding surface a gray colour; whereas in places where it is not subject to the friction of mastication it is dark gray to black at the surface, although, in contradistinction to amalgam, it does not discolour the tooth in the least.

No attempts have, as far as I know, been made in American dental literature to account for the hardening process, whereas the discolouration is frequently spoken of as being due to the oxidation of the tin, although it is a well-known fact that oxide of tin is not black, but white.

The following very simple experiments, which every one, student or practitioner, may easily repeat, furnish a ready explanation of the changes in tin-gold fillings referred to:

Put a sheet of gold foil between two sheets of tin foil, and submerge the whole in a one per cent. solution of lactic acid at the temperature of the human body. After a few hours separate the sheets, and you will find that the gold is now not yellow, but gray, and, in fact, scarcely to be distinguished from the tin. A few hours later the gold will have a brownish colour, which still later passes gradually into bronze and black. In the solution we find a white, flocculent precipitate of oxide of tin. The gray to black layer on the gold consists of metallic tin. These phenomena take place much less rapidly in solutions of acetic acid, and not at all in butyric acid. Likewise, also, in solutions of hydrochloric and sulphuric acids, but not in nitric acid.

If we subject the sheets of tin and gold to pressure during the experiment, we will sometimes find them adhering to each other, so that they may be difficult to separate. If we place a sheet of gold on one of tin, leaving the upper surface free, we find that only the under surface of the gold receives a

coating of tin ; whereas if we cover the upper surface of the gold with a plate of glass, this surface likewise becomes coated, but not so rapidly as the under surface.

Now, all these phenomena appear to me to admit of a ready explanation. In weak acid solutions an electric current is produced between the tin and the gold, by which the solution is decomposed. Since gold is electro-negative in relation to tin, hydrogen collects on the surface of the gold and oxygen on that of the tin. The oxygen combines with the tin to form oxide of tin ; the electro-positive oxide of tin now travels to the electro-negative gold, where it is deprived of its oxygen by the hydrogen, and is deposited as metallic tin on the surface of the gold. The fact that the upper side of the gold leaf does not colour when left free, but does when covered with some indifferent substance (glass), I can only explain on the supposition that in the former case the hydrogen escapes immediately on forming, therefore no reduction of the oxide of tin takes place. In the second case it is retained on the surface of the gold by the glass plate, and in that way effects the reduction of the oxide of tin in solution. The gold does not seem to suffer any change whatever, and, although in old fillings there is no trace of it to be seen even under the microscope, it may be brought to light by subjecting the filling for some length of time to the action of nitric acid of the specific weight 1.3.—*Penn Dental Journal*.

TEETH IN ASIA MINOR.

By Dr. HERAUT B. MATTEOSSIAN, Constantinople, Turkey.

During the past summer I made a professional trip into Asia Minor, where people who have teeth have also pyorrhea, and where they let the dentist treat the pyorrhea and cure it, —for nothing. If there is anybody who is so interested in this pathological condition of the mouth as not to mind the pathological condition of his pocket, all he has to do is to come here and treat pyorrhea to his heart's content.

The people live very largely an open-air life. The staple

article of food is wheat in a thousand forms,—whole, cracked, in cakes, in pies, and so many variations that one is quite bewildered at the many forms in which it appears at table. It is parched and kept for the winter to be turned into *pilaf*, while another way of preserving it is to mix it with curdled milk, dry in the sun, and then keep it through to winter to make soup. Meat is not much eaten, but is kept for winter consumption in the form of sausage or a kind of bacon, sun-cured and very highly spiced, with an almost unsupportable quantity of garlic thrown in. Onions and fresh vegetables and fruits are eaten in profusion during the months when they are in season, but in winter vegetables are an unknown quantity. As may be deduced from the foregoing description of diet, at least as far as wheat is concerned, the people have very hard teeth. From a hereditary point of view they are also fortunate, for irregularities are exceedingly rare. During the three months I spent among them not one constricted arch or particularly unsightly irregularity came under my observation. The arch is usually broad and well-shaped, the teeth large, symmetrical, and, as a general rule, very well articulated. Little decay, especially of the incisors, the sixth-year molars and bicuspidis being, as usual, the chief defaulters in this respect. The roots of the teeth are long and thick, with a tenacious hold on the alveolus. This can be verified by anybody who wants to come and have a pull. This much for a preliminary description.

If the people inherited good teeth, they have also a legacy of ignorance, as far as the tooth-brush is concerned. The usual substitute is the finger. I may also mention that there were numerous manifestations of rheumatic diathesis. Gout is of course very rare, as a natural consequence of the style of food, but it is hardly surprising, when we take into consideration what scanty protection mud houses offer against the severe winter, that there should be a great deal of rheumatism in all its forms. As a consequence tartar accumulates early and freely. The dentist is a rare bird, while the itinerant quacks who occasionally shed their light in that corner of the globe hardly know enough or are sufficiently well equipped with instruments to remove tartar properly. Hence all the forms of gingivitis resulting from such a condition of things simply flood the country. The excess of cereal foods taken increases the phosphates and lime-salts. Add to this, if you will, such insoluble salts as may be deposited on the teeth of people having a rheumatic diathesis,

and you will not be surprised to find patients presenting themselves while yet under twenty years of age with their teeth half-hidden under tartar, pus exuding from the gums, and all the other indications of a full-fledged case of pyorrhea.

The disease as it presents itself here may be said to appear in three forms. In the first there is a large quantity of salivary calculus pretty evenly divided all over the mouth. The gums are spongy and red, but the quantity of pus which they exude is small. The teeth are usually firm, although there are cases where the gum has been forced down so far and so much alveolus has been absorbed away that the firmness of the teeth is little short of a miracle. A thorough cleaning away of the calculus and washing the parts cleaned with a light antiseptic fluid usually had wonderful effects on this class of cases within a short time, although there was rarely a full return to normal conditions without repeated applications of tincture of iodine and the faithful use of the brush. The results after such treatment (Talbot's method) were most gratifying, particularly as most of those in whom such a condition was found were under twenty-five years of age; one patient presented himself who was hardly fifteen. That this is a form of pyorrhea is denied by some, but if it is not incipient pyorrhea, then what is it? It seems to me we are justified in calling it the early stage of pyorrhea, for the form next to be described is only the former after it has grown older and entered a more advanced stage.

In this the conditions are the same as in the former, except that the teeth are more or less loose and the quantity of pus greater. If the teeth are not very loose, by very careful removal of the salivary calculus and persistent treatment successful results may be obtained; but there are in practice two conditions which are a *sine qua non*. First of all, the teeth must not be too loose, and, secondly, the patient must be under forty-five. If the teeth are continually shaking, their own motion will be such a continual source of inflammation that it will baffle all the means you may use; whereas if the system has not sufficient recuperative force, on account of age or other constitutional reasons, a form of pyorrhœa at all advanced, with teeth even slightly loosened and deep pus-pockets, will be found so obstinate that it will finally humiliate the man who tries to cure it. The best treatment I have found after trying many is a combination of several advocated by different people. All cases which present themselves cannot be treated in the same way; it is

necessary to use discrimination and judgment, according to the requirements of the situation. In simple cases, with shallow pockets, Talbot's method works like a charm. The secret of success in these is thorough removal of the tartar and regular brushing of the gums at least once a day. Where the pockets are more or less deep it may be advisable to cauterize them, but this should be done with judicious caution. Surgical cleanliness of the parts, as far as practicable in the mouth, goes a very long way towards healing pus-pockets around teeth, although the process is a slow one. If it is considered necessary to cauterize the pockets, pure carbolic acid, followed by glycerine, is usually very effective, and has this advantage over aromatic sulfuric acid,—that it does not attack the tooth-structure. Teeth have a tendency to become sensitive to heat and cold after tartar is removed from them, and repeated applications of acid, even when neutralized immediately, have the tendency to make the parts touched by the acid exceedingly sensitive to thermal changes. A word also about the use of antiseptics. All mouth-washes should be but slightly antiseptic, for much harm may be done by the copious use of strong germicides in the oral cavity, while it is doubtful whether, in the nature of the circumstances, they can achieve the end for which they are used.

There is a third form of pyorrhœa which differs from the foregoing in its manifestations. Here the gums are not of a very unhealthy appearance, being very slightly, if at all, puffy, and of a deep, instead of the normal, pink colour. Sometimes the appearance of the gums and their firmness are so natural that one would hardly suspect they were diseased at all. Salivary calculus not very abundant, existing often only in the interstitial spaces ; but there is a long slit between the gums and teeth ; the neck of the tooth immediately below the gum and the roots as far up as the gum is loosened are covered with a deposit of fine, granular tartar. Sometimes the deposit is in the form of the black spiculæ we know so well, and which are often removed so easily ; but in the majority of the cases one meets in this country the deposit is of a fine, sandy, gravelly nature, consisting of minute and very hard nodules, which adhere tenaciously. These nodules vary in size : they may make the root-surface look irregular, or they may give the root the appearance of one of the cone-socket handles familiar to all. The odour of the mouth is typical of pyorrhœa, and is the most suspicious symptom on first sight. A closer examination will show a persistent flow

of light greenish purulent matter, and a considerable loosening of the teeth through alarming absorption of the alveolar edges. Now, this is a true case of uric acid manifestation, but what are you going to do about it? The patients are usually over middle age. Will anybody claim that systemic treatment and any amount of lithia salts will dissolve away the deposits, or do it fast enough to save the teeth? There is no mechanical way of cleaning these roots; no scaler ever invented will, through the nature of the case, ever get all the calculus away, even if the patient allowed you to dig repeatedly under the gums, in the neighbourhood of hyper-sensitive periosteum, for the purpose of scraping or chipping off all the deposit.

I have often attempted to do something for such of these forms as appeared most favourable, but am forced to confess that after trying everything conscientiously not only did a cure fail to be secured, but, as far as could be seen, the patient had derived no benefit from the treatment, which was often painful and tedious. Much more good may be done the patient by efforts to prevent the spread of the disease to teeth as yet not attacked, and frankly admitting that a cure of those already loosened is still an impossibility to dental art and science.—*Penn. Dental Journal*.

ANÆSTHETICS.

Narcotics have been known for long ages, but the general use of anæsthetics in medicine is a feature of quite modern times. The ancients dreamed of a river of Lethe, of which mortals drank and straightway forgot the troubled past; and Tennyson has sung to us of the land of the Lotus-eaters, where mental worries and trials were drowned in a sweet lassitude and oblivion. Homer speaks of nepenthe, which has been interpreted to mean either poppy-juice or hashish; while in some senses the almost universal use of alcoholic stimulants from the earliest times is associated with the idea of raising man above mental or physical pain. For the same purpose, spells and incantations were often used, the religious element having always entered largely into the medical sys-

tems of uncivilised peoples. The Chinese boast that for thousands of years they have known a drug, which they name *mago*, that has the power of destroying pain. Hemp seed and mandragora were long used for the same purpose. These, with poppies and kindred herbs, were chiefly employed as sleep-inducers. In one of Middleton's plays occur the lines—

“I'll imitate the pities of old surgeons
To this lost limb, who, ere they show their art,
Cast one asleep.”

Aristotle states that the Assyrians used to induce insensibility by forcible compression of the veins of the neck. Mesmerism was also well known in the old days. When we come to the Middle Ages we find a continuance of the same practices. An anæsthetic recipe of the thirteenth century has been handed down to us, and from this we learn that herbs of great narcotic power were not only known, but used. The recipe is as follows: “Take of opium, of juice of unripe mulberry, of hyoscyamus, of the juice of the hemlock, of the juice of the leaves of unripe hemlock, of the juice of the wood ivy, of the juice of the forest mulberry, of the seeds of the lettuce, of the seeds of the dock that hath a large apple, each an ounce: mix all these in a large brazen vessel, and then place in it a new sponge; let the whole boil as long as the sun lasts in dog days, until the sponge consumes it all. As oft as it is required, place this sponge in hot water for an hour, and let it be applied to the nostrils of him who is to be operated upon, until he has fallen asleep, when the operation may be performed.” The result would undoubtedly be to induce heavy sleep, and in many cases such sleep would be deep enough to last through an operation; but much naturally depended on the constitution of the patient, and the character of the operation itself. Ether, though its qualities were known in the thirteenth century, was not employed for this purpose till the nineteenth. In the eighteenth century experiments were made at lessening pain by following the ancient method of compressing the veins, and with some success; but they were simply experiments, and no definite system was established. A more real advance was made when Sir Humphry Davy discovered the effects of the inhalation of nitrous oxide, which to this very day is sometimes known as “laughing gas.” Medical science, however, was only one branch of that great man's studies, and his discovery was long utterly neglected. One of his suggestive notes ought to have set the medical men of the day on the alert, but

perhaps they had a professional disinclination to follow the hints of a mere chemist. Davy said :—"As nitrous oxide in its extensive operation appears to be capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place." The remark proved to be in advance of the age in which it was made. Doctors were long shy of resorting to any genuine use of anæsthetics—partly on account of the innate conservatism of the medical profession, partly because they feared adverse results. In no craft is greater courage needed than in that of medicine. Only the boldest dare to venture on anything new.

Matters remained in this state of stagnation and occasional timid experiment till the year 1844. In that year, in a scientific lecture delivered in Connecticut, a local dentist noticed that a gentleman under the influence of nitrous oxide struck himself without experiencing any pain from the blow. Next day he visited the lecturer in company with another dentist, and asked that he might be placed under the gas. Under its influence, his fellow-dentist pulled out one of his finest teeth without his feeling it. Having experienced the result in his own person, this man, whose name was Wells, speedily learned how to produce the gas, and applied it with every success in a number of dentistry cases. Unhappily, he had not the necessary courage and hardihood to resist the opposition of the medical faculty. Offering to make a public operation with the gas, he did so at a hospital in the presence of a large number of sceptical and sneering doctors. For some reason or other, the patient cried out ; probably the gas had not had time to act. Wells was unnerved ; the doctors laughed him to scorn ; and so great seems to have been his mortification that he died shortly afterwards. The lecturer, however, Dr. Colten, would not abandon his faith in the "laughing gas" so easily, after having once had his eyes opened by the unlucky Wells ; and for twenty years he continued to urge its use upon the dentists of America. For long years, possibly fearing the fate of Wells, they all refused to have anything to do with it. At last he was successful ; and, having won the day in the United States, he came to Europe to preach the use of nitrous oxide. When it was discovered that the gas could be rendered fluid, and thus easily portable, its employment became general. It had taken about 70 years for Humphry Davy's suggestion to bear fruit.

An even stronger anæsthetic, sulphuric ether, had revealed some of its properties to Faraday, but its use was not developed till 1846, when another American dentist was persuaded to try it, and did so with conspicuous success. He was led to its employment by an American doctor named Jackson, who, with the shrewdness characteristic of his race, thought to make the secret a profitable monopoly. Unfortunately for his dreams of immense wealth, the substance, which he named "Letheon," was soon proved to be merely sulphuric ether, at the service of anyone who knew how to produce it; and it was accepted generally for use in operations of a serious nature. But it was discovered that ether could be dangerous as well as anæsthetic. The doctors had now realised the value of anæsthesia, but they felt that perfection was by no means reached; and Dr. Simpson, of Edinburgh, set himself earnestly to the study. Dr. Miller has recorded how, chiefly through Simpson's efforts, chloroform was discovered. "My friend Dr. Simpson had long felt convinced that some anæsthetic agent existed superior to ether, and in the end of October, 1847, he began to make experiments on himself and friends in regard to the effects of other respirable matters—other ethers, essential oils, and various gases" At one of their experimental meetings, Dr. Simpson suddenly thought of trying the result of a little chloroform, which hitherto he had thought quite an unlikely material. A little was placed in the glass of each of the party, hot water was applied, and the vapour inhaled. "Immediately an unwonted hilarity seized the party; they became bright-eyed, very happy, and very loquacious. . . . But suddenly there was a talk of sounds being heard like those of a cotton-mill, louder and louder; a moment more then all was quiet, and then a crash." Simpson awaked to find himself lying on the floor; one of his companions was snoring noisily, and another lay kicking about on the ground. Simpson's first thought was "this is far stronger and better than ether." Chloroform was proved to be quite the best anæsthetic ever experimented with. It was more agreeable, safer, and more easily applied than ether, as ether had then been manipulated. Time has brought about something of a reversal of this judgment. There is interest in thus tracing the growth, from days of ignorant barbarism and superstitious charm, to the wise employment of drugs that have robbed surgery of half its terrors.—*Evening Standard*.

INTELLECT AND NATIONALITY.

One of the favourite doctrines of the apostles of the Keltic revival is that the Englishman proper is a "dull-witted" person who owes such success as his race may have won to the bright genius of the Kelts who have been associated with him, and with whom he has intermarried for many generations. It is so fine and comprehensive a theory, and has been accepted with so much dull-witted docility or good humour by the accused that we must apologise for drawing attention to some mere statistics industriously collected by Mr. Havelock Ellis and summarised by him in a recent number of the *Monthly Review*. His plan was to take out of the *Dictionary of National Biography* the names of men and women of the British race "who have chiefly built up English civilisation." He found that 902 names stood out as of "pre-eminent ability," and he then sought to ascertain whether they belonged by origin to England, Wales, Scotland, or Ireland. To do this he went back to the place of origin of the parents, and if possible of the grandparents. He got information, more or less full and trustworthy, as to 779 eminent persons, and found that 598, or 76.8 per cent. were English; 23 or 2.9 per cent. were Welsh; 117, or 15 per cent. Scottish; and 41, or 5.3 were Irish. Compared on the basis of present population—a basis obviously open to objection, but probably as good as could be found—he finds a great excess among the Scotsmen, a slight excess among the English, a slight deficit among the Welsh, and a very large deficit among the Irish. Among eminent persons of mixed nationality England has the highest possible proportion, 50 per cent., Scotland comes next with 20 per cent., Ireland third with 17 per cent., and Wales fourth with 13 per cent. Mr. Ellis has pushed his enquiries a good deal further, and we are not sure that the numbers with which he deals are large enough to bear the weight of his conclusions. He advances, however, good deal of evidence in favour of his theory that there are two chief foci of men of pre-eminent ability in England, the one in East Anglia, the other in the South-West (Gloucester, Wilts, Somerset, and Devon). He supports his contention not only by numbers but by individual instances. Thus East Anglia has given us Bacon, Gilbert,

Newton, Darwin (if Lincolnshire be included), Nelson, Gresham, and perhaps Chaucer. Of the South-Western centre, Raleigh is given as the typical man, but Fielding, Wesley, Roger Bacon, Hobbes, Locke, and probably Coleridge and Keats, also belong to it. Of Scotland, he says that his men of genius have come mainly from the tract between the Cheviots and the Grampians; of Ireland, that they have come from Dublin or the South-Eastern group of counties, and of Wales that they have come in greatest number from Denbighshire. As to the bent of the genius of the several counties and districts, he says that Scotland has produced a third of the eminent soldiers, a fourth of the eminent men of science, and over a fourth of the philosophers, as well as nearly all the great travellers, explorers, and adventurers; the exceptions coming from the south-west of England. Ireland has produced more than her share of soldiers, while sailors have nearly all been English. The great poets are widely diffused through England, and so are the scholars, although their chief centre, it is surprising to be told, is Yorkshire. Artists have come mainly from East Anglia and Yorkshire, but also from the south-west of England.—*British Medical Journal*.

ORAL SEPSIS AND PERNICIOUS ANÆMIA.

To the Editor of *The Medical Press and Circular*.

Sir,—Whatever may be the ultimate verdict with regard to Dr. Hunter's well-worked-out attempt to trace the origin of pernicious anæmia to infective sources, there can be no doubt he will have performed a great service to practical medicine by compelling attention to the subject of septic conditions of the mouth as factors in causation of systemic disease. This subject, hitherto, has been almost entirely neglected, although latterly Mr. Watson Cheyne (Harveian Lectures, 1900) has discussed the question of tuberculous glandular infection from diseased teeth; and Mr. Rickman Godlee (Med. Chir. Trans., 1900) has described some of the local and constitutional effects of pyorrhœa alveolaris.

For effective study of this question it is desirable a correct idea should be had of the pathological conditions of the teeth really capable of contributing to the etiological effects ascribed to them. On this matter some confusion evidently exists. Dr. Hunter himself writes of the highly "infectious" nature of caries; and the remarks of Dr. Herbert Snow (reported in the *Medical Press and Circular* to-day, May 15th) show that this impression has been conveyed to others. There is nothing "infectious" in the nature of dental caries itself, and it is only in the advanced stages of the disease, when the pulp has become exposed and inflamed, and when the inflammation having extended to the periosteum has terminated in alveolar abscess and necrosis of roots, that the septic effects described by Dr. Hunter can become developed. Caries in its essence consists merely of solution of enamel and dentine by acids, the products of fermenting foreign particles lodged upon the surfaces or within minute inherent flaws in the enamel. As soon as a cavity is excavated it becomes filled with decomposing *debris*; and this no doubt often forms a favourable nidus for the proliferation of pyogenic or pathogenic organisms which enter the mouth from the external atmosphere. How far dental caries can in this stage contribute towards infection remains to be investigated; but at this stage of the disease suppuration does not occur, nor does any discharge of septic matter from the cavities take place. As soon as the pulp is laid open by caries it becomes more or less inflamed. Its surface may then pour out a minute quantity of foul pus; it may become gangrenous, partly or entirely; and if numerous teeth exist in this state they may, perhaps, constitute an appreciable source of septic infection. When alveolar abscess supervenes, necrosis of roots commonly occurs; and to chronic alveolar abscess, the sequel of caries, may be traced the source probably of the most virulent purulent discharge connected with dental disease. Necrosed roots are equivalent to necrosed bone. Dr. Hunter has very correctly called attention to this, and has pointed out the peculiar infective character of pus from such a source. In some mouths there exist numbers of necrosed roots the centres of suppuration, so that the patient is constantly swallowing large quantities of foetid pus. This condition is very common in young children in whose mouths a great part of the first dentition will often be found broken down by caries and the seat of alveolar abscesses.

The disease pyorrhœa alveolaris has no connection with

caries. It is a disease of middle life and old age only. It is a process of slow wasting of the alveoli and gradual shedding of the teeth, attended by very slight inflammation and constant discharge of foul pus from within the free edge of the gum and alveolus.

In a large number of cases of pyorrhœa there is a singular absence of caries, and the teeth are often of the best structural character. It occurs in many instances in patients whose care of their teeth amounts to fastidiousness. The malady is extremely chronic; many months elapse before each affected tooth is shed. The disease starts in one or two teeth and gradually affects others not necessarily adjacent, until in the end the whole set becomes involved. Of the etiology of pyorrhœa virtually nothing is known. Knowledge of its pathology is almost equally lacking, whilst prognosis is always unfavourable, treatment being rarely able to do more than mitigate the severity of symptoms and slightly check their course. This disease, although common enough in dental practice, is very rare compared with caries. It is always attended by or associated with disturbance of the general health, and to this dental disease beyond all others it would be most reasonable to ascribe the systemic toxic effects leading to the form of anæmia so graphically described by Dr. Hunter.

I am, Sir, yours truly,

HENRY SEWILL.

DENTISTRY FOR BOARD AND LODGING.

The proprietor of a boarding-house has just had a noteworthy example of the up-to-date methods of the present day. He has received the following from Dublin :—

“ If you or your family are in need of any high-class dentistry, I will be pleased to make an exchange for table, board, and comfortably-furnished room—(one room, two beds for myself and assistant)—inclusive. Highest references.”

Blackpool Gazette.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.*

Ordinary monthly meeting, May 20, 1901. Mr. John Ackery, M.R.C.S., L.D.S. Eng., President, in the chair.

The minutes of the previous Meeting were read and confirmed.

Mr. Frederick Breese signed the Obligation Book and was formally admitted to membership by the President.

Signed obligation forms were received from the following members and they were declared duly admitted by the President :—Messrs. C. C. Robinson, H. Bellamy Gardner, T. S. Muspratt Hall, Frederick G. Atkinson, and John Charles Atkinson.

Mr. W. Cecil Harrison, L.D.S. Eng., Metropolitan Chambers, Walsall, was proposed as a non-resident member of the Society. The following gentlemen were balloted for and duly elected members of the Society. Resident member :—Percival Sydney Campkin, L.D.S. Eng., 30, Wilton Place, Belgrave Square, S.W. Non-resident members :—Edward P. Collett, L.D.S. Eng., 8, St. John Street, Deansgate, Manchester ; Joseph Ainsworth Woods, L.D.S. Eng., 76, Mount Pleasant, Liverpool.

The Librarian reported the presentation to the Library by Mr. Sewell of a copy of the fourth edition of his work on "Dental Surgery."

CASUAL COMMUNICATIONS.

Mr. RUSSELL BARRETT reported a case of underhung bite cured quickly and easily by means of inclined planes. When the patient, who was a boy aged 9, came to the hospital, he had well-marked underhung bite, his lower incisors overlapping the upper incisors by very nearly a third. Different methods of treatment were thought of, and at last it was decided to put in inclined planes over the incisors and molars. The plate was inserted on June 16, 1899, and on June 23 his bite was edge to edge. He did not come to the hospital again until March 30 in the following year, when the upper incisors were biting well over the lower incisors.

* Transactions of the Odontological Society of Great Britain.

The patient was kept under observation until the case was considered finished.

Mr. Russell Barrett illustrated the case with several lantern slides and models.

Mr. J. C. STOREY also presented a communication on a case of replantation. About eighteen years ago a patient, about fourteen years of age, applied to him for the extraction of a first left upper bicuspid. As the tooth was not broken down, and he was apparently suffering from an exposed pulp, Mr. Storey advised filling; after repeated arsenical dressings extending over a fortnight, he was unable to get into the pulp for extirpation, and as severe pain continued the tooth was extracted. As it was the only missing tooth in the arch replantation was recommended, and to this he consented. The tooth was carefully handled in a carbolised cloth. The pulp, which contained a pulp stone was removed, and the roots filled (apparently with amalgam.) The tooth was replaced the same afternoon, and in three days it was firm. He had since then repaired the filling on two occasions, but had not seen the tooth for seven or eight years until he received the following letter: "It might perhaps interest you to know that the tooth you replanted for me about eighteen years ago has not given me any further trouble until a few weeks ago, when it became loose, and the other day came out. I enclose it for your inspection. You will notice that much or all of the crown has come off and left the filling intact."

The discussion was taken on the two communications.

Mr. F. J. BENNETT said that in taking out a tooth with a view to replacing it, it seemed to him a wise course to place the tooth for the time being in a normal saline solution, which as nearly as possible resembled the constituents of the blood, and in that way the periosteum was preserved in approximately its vital surroundings. Some people were in the habit of putting the teeth into an antiseptic solution, but that might coagulate part of the albuminous substance, and really destroy some of the delicate tissues which were wished to be kept alive. In a normal saline solution the blood vessels at once appeared in their bright arterial condition, and the tooth might be safely left with the assurance that the tissues would not deteriorate.

With regard to Mr. Barrett's case, he should like to know why he chose the method of the inclined plane, considering that the mechanical principle of an inclined plane was not

perhaps one which was calculated to effect the result so speedily, or with such success as one in which the pressure was continuous. The inclined plane could only act when the lower jaw was brought against the upper jaw; certainly an ordinary plate attached to the upper teeth, pressing steadily on the teeth independently of the opening or closing of the jaw, would be a more effective plan than the inclined plane. In other respects, he considered Mr. Barrett was to be congratulated on having achieved a success.

Mr. LEONARD MATHESON said there seemed to be one very good reason for using the inclined plane, namely, that such a contrivance dealt not solely with the relation of the upper and the lower teeth, but with the relation of the mandible to the maxilla. He had had one or two cases of the kind himself; one the case of an underhung bite, and two or three cases of superior protrusion, in which he had been able to jump the bite, and he thought Mr. Barrett's was a case of jumping the bite; not jumping forward but backwards. By jumping of course he meant the alteration of the relation of the mandible to the maxilla. He thought the case was extremely interesting, as showing the power that we possess in dealing with the articulation, as well as the teeth themselves.

Mr. F. J. BENNETT said it would be extremely interesting if the Society could get an authentic case of alteration in the actual articulation of the temporo-maxillary joint. It would be a great step in advance to have a record of cases where the joint had been moved further back, or in any way altered.

Mr. H. LLOYD WILLIAMS said he had been in the habit of using inclined planes for a considerable time for a similar purpose, and even for moving a single or two teeth over the bite, but he attached the inclined planes always to the lower teeth. He had one case some years ago at the Dental Hospital, one of the worst cases of underhung bite he had ever seen. The cutting edges of the lower incisors when the mouth was shut were on a level with the cervical margins of the maxillary teeth. In that case an inclined plane was put upon the lower teeth, and to his great surprise the case was finished in six weeks. Since then he had used inclined planes very freely, and with great satisfaction.

Mr. W. RUSHTON considered it might add value to the communication if Mr. Barrett had taken a profile of the child before and after treatment, which would have shown how much the mandible had been affected. Personally he found a very useful apparatus was the skull cap, with elastic bands,

worn night and day. It was rather unsightly, but very effective.

The PRESIDENT thought the case extremely interesting, and agreed with Mr. Bennett that it would be satisfactory if it was possible to put on record a few definite instances of jumping the bite. He knew there were some members of the Society who were sceptical of the possibility of jumping the bite.

Mr. W. HERN admitted that he was one of the sceptical members as to the possibility of the condyle of a mandible being jumped back from its normal position. He could quite understand cases where, from inversion of the upper front teeth, or from some other cause, the mandible had been habitually carried forward so that the lower teeth occluded in front of their normal position, and the bite of the patient may have assumed the underhung condition. It seemed to him that when the bite did get jumped backwards it must be produced by the condyle sliding backwards from such an abnormal forward position to its correct position of rest in the glenoid fossa.

Mr. RUSSELL BARRETT, in reply, said he had thought of different methods of treating the case, and as he knew he should have to open the bite and use a chin cap, or push out the upper incisors, and as he did not think either of those methods was quite as applicable as the inclined plane, he used the method he had mentioned. After a week the body of the jaw appeared to be bent, but that did not increase, and he thought it really did not occur. At any rate, from the photographs the bite seemed absolutely to have moved back about a quarter of an inch. He was sorry he did not have photographs taken of the boy, but at the time he could not think of anyone who would do it. He actually had a chin cap made to use with the plate, but the result of the treatment was so good that it was not used.

In connection with the case of pedunculated tumour shown by Mr. W. Hern at the last meeting, Mr. HOPEWELL SMITH exhibited some microscopic slides illustrating the pathological condition of the case. As far as he could make out the pedunculated growth was a fibrous one of a very vascular character. Some of the blood vessels were visible to the naked eye by holding up the section. There was the usual epithelial surface, and the ordinary connective tissue fibres found very often in fibromata. It was an absolutely innocent growth.

Mr. D. E. Caush then read a paper upon "The Development of Pulp Nodule," which is published at page 577.

DISCUSSION.

Mr. HARRY BALDWIN considered the Society extremely indebted to Mr. Caush for his admirable paper so beautifully illustrated. Mr. Caush's explanation of the utility of pulp stones was rather picturesque. It had always struck him that there was never any utility in them whatever. Curiously enough, they were apparently caused without the slightest intervention of the usual cells, which caused calcification of the dentine, and it was impossible to imagine osteoblasts in the centre of the pulp. It was therefore difficult to imagine that the pulp stones really consisted of true bone. He failed to see that there was any correspondence between the calcification of pulp stones and that of cementum, because cementum was a tissue formed by osteoblasts, and capable of being added to by osteoblasts present in the periosteum. He thought the usual structureless character of pulp stones tended to show that they were mere calcifications of some inflammatory deposit, or at any rate, simply adventitious calcifications of parts of the pulp that had become changed chemically, and without any idea of the pulp performing any useful functions. He thought they were merely to be compared with the calcifications of cyst walls and tendons which occasionally occurred, and other calcifications the result of degeneration. That they sometimes became attached to the dentine, seemed to him to be on a par with cases in which bullets became attached to and enclosed by the dentine in an elephant's tooth.

Mr. F. J. BENNETT could not agree with Mr. Baldwin's explanation, and thought Mr. Caush's view was the correct one. Although that view might be original as applied to dental structures, it was not altogether original, as Dr. Sims Woodhead very carefully and lucidly described the method by which in tuberculous calcified nodules, the process took place. A tubercular bacillus was a source of irritation, and the blood vessels poured out a number of leucocytes, which attacked the bacillus, and in the process some of the leucocytes died. Gradually the leucocytes completely surrounded and isolated the bacilli, cutting off their supply of nourishment and thus destroying them. The calcified nodule was to be understood as representing the calcified dead tissue which enclosed the bacilli, and that dead tissue was largely formed by the leucocytes which had passed out of the blood cells and seized the bacilli. An almost exact analogy might be under-

stood to take place in pulp nodules. There was a source of irritation, and the blood vessels responded by pouring out a number of leucocytes which died and became calcified, and in that way a calcified mass was obtained. He did not think it was necessary to suppose that the irritation was due in every case to outside causes like micro-organisms; it might be due to portions of degenerated pulp tissue. He did not think they were always felt as a source of irritation, because he had found in certain teeth that had been extracted for regulation purposes the whole pulp cavity almost entirely filled with the secondary nodules, and yet the patient had not complained of any particular pain. Again, in gouty cases it was very difficult to kill a pulp without a deal of pain, because the pulp cavity was occupied by nodules, and yet the patient had not suffered from them previously. It was a very difficult thing to understand how some of the cases had apparently dentinal tubules and some had not, and it was difficult to understand how they could be formed if there were no odontoblast cells to form them, unless the explanation of Dr. Sims Woodhead and Mr. Caush as to the pouring out of the leucocytes, which ultimately became calcified, was accepted.

Mr. HARRY BALDWIN considered that Mr. Bennett's idea was practically the same as his own. Mr. Bennett thought the inflammatory exudation was a mass chiefly of leucocytes, and he himself thought the stones were formed of inflammatory exudation, and of course included leucocytes as one of the constituents of that inflammatory exudation.

Mr. F. J. BENNETT accepted Mr. Baldwin's explanation. He had not quite understood Mr. Baldwin's use of the term inflammatory exudation in that way.

Mr. HOPEWELL SMITH said that in some sections of pulp nodules he had come across he had seen an appearance very similar to Mr. Caush's, but he had not really been able to convince himself that what looked like tubules were really tubules. He almost believed they were not tubules, but connective tissue fibres. He tried to settle the point, and ground a section very thin, put it under a cover glass, and decalcified it, and even then he was not able to determine whether there was an elastic membrane or sheath to the tubule. He was convinced in his own mind that the odontoblasts had nothing to do with the formation of the nodules, because the nodules were at a great distance from the periphery of the pulp, as Mr. Caush had shown, and were chiefly

found in the neighbourhood of the blood vessels. He concluded himself it was a process analogous to the intramembranous ossification of bone, where bone cells were pouring out a calcific flood round connective tissue fibres. As to the etiology of the development of the nodules, he fancied it was more of a constitutional cause than a local cause. It was very difficult, for instance, to imagine the whole of the upper teeth affected with pulp nodules where each pulp had two or three dead cells or leucocytes in its tissue. He believed it was a general condition, more of the nature of gout, as Mr. Bennett had shown. It was very hard to conceive of one dead cell being produced in a pulp and not a whole lot of dead cells, and the condition producing one dead cell would produce most likely an inflammatory condition of the pulp, which would lead very quickly to disorganisation, and probably no formation of pulp nodules at all. The matter deserved much more attention than had been given to it, and if the actual cause of the pulp nodules could be decided, it might then be possible to diagnose them before treating pulp canals. That was the practical point of the whole thing.

Mr. D. E. CAUSH, in reply to Mr. Baldwin, said that with regard to the tissue, so far as he had been able to judge—and he thought he had a reasonable amount of experience—the pulp nodules were developed exactly in the same way as cementum was developed in exostosis. A large number of small round cells were formed, and by the calcification of some of these the tissue was developed. He fully agreed with Mr. Hopewell Smith and did not believe the markings were tubuli, he had endeavoured to stain these markings but without any result. He had not tried decalcifying afterwards, but would make a point of doing so.

The PRESIDENT, having thanked Mr. Barrett, Mr. Storey and Mr. Caush for their papers, and the gentlemen who had taken part in the discussion, adjourned the meeting until June 24.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND.—A public announcement has appeared stating that material changes have been made in the course for the preliminary examination for the year 1902.

Dental News.

HIGHGATE DENTIST'S SUICIDE.

Dr. G. Danford Thomas held an inquest at St. Pancras on Tuesday, with reference to the death of John Henry Armitage, aged 54 years, a dentist, of 37, Rayden Street, Highgate New Town, who committed suicide by taking poison.

Deceased was recently charged with throwing vitriol over his stepson, and was committed to the Central Criminal Court, but admitted to bail.

The Coroner said that it was reported to him that deceased had been strange in his manner for some time. It might be that the charge made against him was the cause of his worry.

The Coroner's Officer said that deceased threw the vitriol into the street, and the stepson coming in, it caught him and injured him. Deceased was well known for his peculiarities, and boys in the neighbourhood used to annoy him. The Coroner's Officer said that the stepson was injured in the left eye, and was still under the care of Dr. Haines.

Emma Armitage, a midwife, the widow, deposed that her husband, who was a dispenser and dentist, formerly at various hospitals, was not a duly-qualified chemist. He had been at St. Mark's Hospital, City Road, for 21 years. Deceased had since a severe illness for eighteen months. Deceased was most strange in his manner, and the charge worried him. On Saturday afternoon, when he returned home, he was irritable, and would not speak to her. He kept running up and down the stairs, and broke some things. He went out, and on his return home he kept wandering about the house. At half-past eleven she saw him take a phial from his pocket, and he said, "I am going to have a drink out of this," and she knocked it out of his hand. After that he took another phial from his pocket, and drank from it, saying "I have another." She tried to knock that out of his hand but some fell over her.

The Coroner: The bottle contained cyanide of potassium.

Witness added that the deceased died an hour and a half afterwards.

Julia Hawkins, living in the same house, stated that she was called, and found he had taken some poison.

Police-sergeant Thomas Wooding, 58 Y, said he was called to the case.

Dr. Gilbert Reginald Donnell, of Dartmouth Park Hill, stated that he had known the deceased for some time, and he heard that his mind was a little unhinged. On Sunday morning early he was called, and found him in an insensible condition suffering from poisoning by cyanide of potassium. Deceased died soon after. He had made a post-mortem examination of the body, and found that death was due to poisoning by cyanide of potassium.

A verdict "That the deceased committed suicide whilst of unsound mind" was returned.

The deceased's name is not on the Register.

ISLINGTON GUARDIANS AND THE CHILDREN'S TEETH.

The School Committee recognising the importance of having the children's teeth attended to regularly have obtained information from schools in the Metropolis, and they now recommend the appointment of a Dentist at a salary of £20 per annum. The person appointed to provide his own instruments, to visit the schools weekly, to examine the teeth of each child at least every three months. The salary to include all charges for scaling, stopping, and doing all that appertains to the teeth of the children.

Mr. Chatterton had the phrasing amended by having the word "her" added.

Ald. Tomkins took exception to the last line which referred to the "scaling" of teeth. It was not necessary at all, the children's teeth being healthy, clean and white.

Mr. Webber, as a member of the School Committee, said he would vote against it. Just because other parishes had allowed this extraordinary expenditure in having a dentist they were about to agree. He would like to know why they did not accept the dentist who once volunteered to do the work free of charge. The Board objected then, but now they were rushing to do something which was not required

at all because other Boards allowed £15 for this work. He would move that it be referred back.

Mr. Stonelake seconded.

Mr. Malins hoped the Board would not adjourn this matter. He was sorry to say some gentlemen talked as if they practically ignored the infirmities of human nature. It was well known that a number of young children suffered from bad teeth which they would be very glad to get put right.

Mr. Fricker said it was a part of the Medical Officer's duty to examine the children's teeth.

Mr. Friend—Yes, and after the doctor found anything wrong the child was sent to the Great Northern Hospital.

Miss Farmer was terribly surprised at Mr. Webber's remarks as he was on the Committee. It was well known that a boy with bad teeth would not now be accepted in the Navy.

Ald. Tomkins—You can prevent decayed teeth.

Miss Farmer—Oh yes, with proper care.

Mr. Dearing—Why don't they keep their teeth clean? It is the main thing. Have they all got brushes?

Miss Farmer—Yes.

Mr. Dearing—They will have to get some one to clean their teeth by and bye (laughter).

Mr. Williams hoped it would be carried.

Alderman Tomkins suggested that they might also have a manicurist appointed (laughter).

Miss Clarke said they were frequently hearing of boys being rejected for the Navy because of decayed teeth.

A vote was then taken, when 11 voted for the amendment and 15 against.

Alderman Tomkins said he would move an amendment that the dentist visit every day, and said no doubt he would be well paid for the amount of work which would be done.

There was no seconder, and the discussion closed.

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CHARING CROSS HOSPITAL.

Professor Clifford Allbutt, in his address to the students of the Charing Cross Hospital Medical School on the occasion of the presentation of prizes on June 26th, referred in the course of his remarks to the disastrous effect of extinguishing the natural curiosity born with every man to inquire into the nature of things. He also improved the opportunity by administering a crushing answer to those who have sought to discredit the hospitals by saying that patients were experimented upon by the physicians in attendance. An apt quotation from Hobbes and a singularly lucid explanation of the scientific methods of teaching medicine at the present time concluded a most interesting and earnest address which was greatly appreciated by the numerous company assembled at the Charing Cross Hospital Medical School.

MARRIAGE.

MILLER—COOK. On June 12th, at the Parish Church, Preston, by the Rev. H. S. Buttler, M.A., Vicar of Preston, Thomas Henry Miller, M.B., Ch.B., L.D.S., eldest son of Nathaniel Miller, Esq., J.P., L.D.S., of Hinckley Square, Preston, to Janet Allan Cook, elder daughter of Alexander Cook, M.D., F.R.C.S., of Ribblesdale Place, Preston. At Home, 2, Avenham Colonade, July 9th, 10th, and 11th.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by Correspondents.]

To the Editor of the "British Journal of Dental Science."

FORCIBLE ADVANCEMENT OF TEETH.

Sir,—I find I have done an injustice to Dr. Grevers of Amsterdam, in my communication upon this subject in the JOURNAL of Jan. 15th. He kindly sent me the forceps with which all except the few first oper-

ations were done. In describing this instrument (which is now on sale at the depots) I stated that I believed it was formed on the model of that used by Dr. Bryan of Basle. Dr. Grevers has since informed me that he has never seen the latter, but that he devised and modelled his own forceps for his own work. He considers the operation sound and advisable; he frequently resorts to it in his clinic, and has not had one case to record where it was a failure.

I am, Sir, yours &c.,

SIDNEY SPOKES.

June 24, 1901.

To the Editor of the "British Journal of Dental Science."

THE ADVERTISING DENTIST.

Sir,—The report of the proceedings of the General Medical Council in your Journal received to-day makes it very clear that no respectable dentists in any town need longer be disgraced by the wretched advertisements of any registered dentist. They have only to collect a batch of advertisements and send them to the Secretary of the Medical Defence Union, and he will do the rest. At the same time, or before sending the advertisements, I think it would come with a better grace, if the dentists in the aggrieved town were to send a few subscriptions of half-a-guinea each to the Union. The stronger financially that Union is the more effectual it will be.

I am, Sir, yours &c.,

L. D. S.

To the Editor of the "British Journal of Dental Science."

Dear Sir,—I noticed that one of your paragraphs appears to be an extract from the *Money-maker*. As it appears, it is unfair to the author of the pamphlet referred to, as domestic servants, dentists, and incapables are not classed together.

Taking the extract seriously, I considered it seriously together with the whole pamphlet, and as much information as I could obtain elsewhere.

One or two considerations may perhaps be sufficient to deter all but the wealthiest from hazardous speculation in emigrating to Rhodesia just yet awhile.

Mr. Frost, L.D.S., is established in Buluwayo, and has been there eighteen months. Buluwayo one year ago was estimated to contain 7,500 inhabitants. This is hardly a liberal allowance for even one dentist. The estimated total white population spread over 174,728 square miles is 12,000, or outside Buluwayo 4,500. Just about the size of a provincial town in England that a Dentist might visit once a week.

Those who read the Dental Journals will remember an account of itinerant Dentists visiting Boer farms to hawk toothache cures and extract all teeth requiring stopping. All these gentlemen if registered in Cape Colony are admitted to the lucrative field presented by Rhodesia by Ord. No. 8, 1900.

The population of Rhodesia is a flea-bite compared with Western Australia, where mining camps of two to three thousand inhabitants may, if lucky, see a dentist once a year.

In conclusion, should any Dental Cresus contemplate the step let him obtain the pamphlet, (gratis), and duties payable on articles entering the country, and count the cost.

However grand the country may be for pioneers, and however anxious the Company are to induce settlers, as shown by the full and rapid replies to all queries, pause! and decide to be a

CAT'S-PAW FOR NO-ONE.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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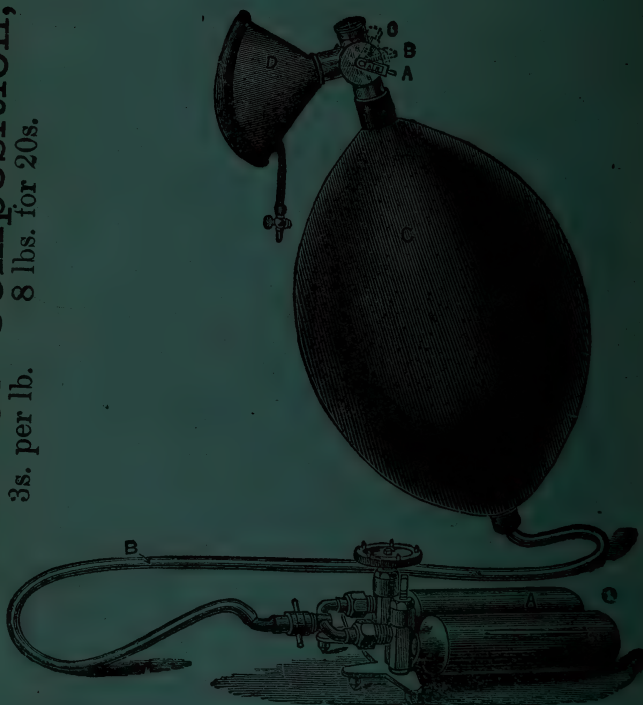
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ESTABLISHED JULY, 1856.

"INDEPENDENCE AND LIBERALITY."

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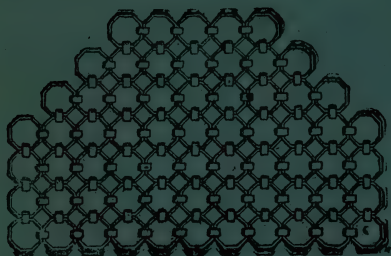
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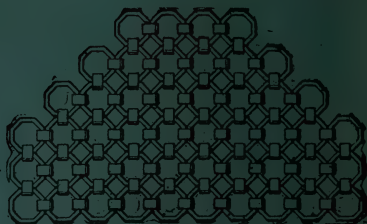
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This Journal is published **TWICE A MONTH**, on the 1st and 15th.

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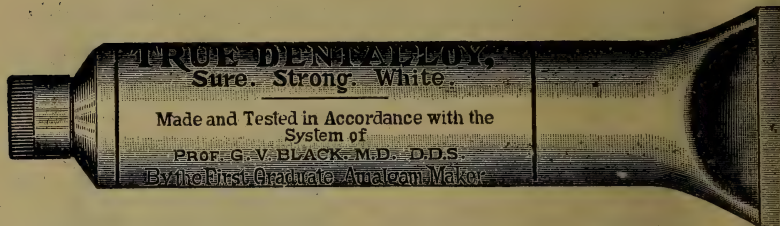
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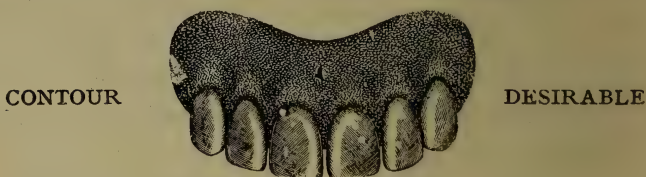
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British Journal of Dental Science

No. 805. LONDON, AUGUST 1, 1901. VOL. XLIV

CHEMICAL EROSION OF THE TEETH.*

By Dr. LEON FREY, Paris.

This term is applied to a process in which the hard dental tissues are eaten or wasted away, principally upon the labial surfaces near the cervical margins of teeth (Bödecker, "Anatomy and Pathology of the Teeth"). Erosion is characterized by its hardness and polish. This alteration had already been recognized and specified by Black,* Kirk,† Perry,‡ and others. Erosion was carefully studied by Znamensky, professor at the University of Moscow, under the name of *cunceaform deformity*.

American authors reserve the name abrasion to the mechanical wasting of teeth. They give the name of atrophy to those congenital structural troubles that we know in France under the name of erosion. Fournier employs the term atrophy in the article upon the teeth, in his dictionary

* Read before the Third International Dental Congress, and published in *The Cosmos*.

* Black, "Abrasion and Erosion of the Teeth," *American System of Dentistry*.

† Kirk, "Erosion," *International Dental Journal*, 1898.

Perry, "Erosion," *International Dental Journal*, 1895.

in sixty volumes. This term is also used by Harris and Austen.

Description.—Upon teeth that are generally large, white, and polished, and which are not covered by tartar, a loss of substance is observed at the neck and sometimes upon the enamel surface proper. It begins at a very limited spot, but gradually it increases in size. The small hole or undercut becomes progressively of large size. On a vertical section of the tooth the erosion presents a triangular form, with the apex toward the pulp and the base toward the periphery. The size of the erosion varies, sometimes the loss of substance is limited to a horizontal direction, it may take the form of an undercut, or, lastly, it may affect the entire surface of the tooth, diminishing the thickness of the crown upon its entire extent. In a case observed by Michaels half of the labial surface of an upper right canine was entirely destroyed, and presented the appearance of the mouth-piece of a flute. Black has observed a case where the erosion had diminished the length of the incisors. This condition was not brought about by articular abrasion, for the articulation was such that the anterior teeth did not touch.

These conditions appear more frequently upon the labial surface, and sometimes upon the approximal, but seldom upon the lingual surface. The margins of the eroded surface are very well outlined, just as though they had been prepared with a saw. The lower one is more marked than the upper, but sometimes they also have blunt margins. The surface in the majority of cases is of a glossy appearance. With the naked eye, irregularities cannot be detected, but Znamensky has shown that with a strong lens a few saucer shaped cavities can be seen. In some cases the cavities can be plainly seen, even without the use of the lens. It is on the number and size of these saucer-shaped cavities that the modifications observed upon the surface of the eroded spots depend, for at

the bottom of these cavities the glossy aspect is gradually lost, and may be replaced by blunt inequalities.

The colouration of the erosion is most variable. Ordinarily it is the color of the tooth, with a polished appearance, but it can also be of a deeper yellow, brownish, and even nearly black. The same surface may present several colourations; the centre may be very deep, while the periphery is lighter, becoming confused with the remaining portion of the tooth.

The consistence of the eroded tissues also varies, and the darker the bottom of the cavity is the more resistant will be the tissues under the excavator; when the surface is rough, the hardness and sensitivity are less.

The eroded surfaces are sensitive to cold, sweet and salty substances, to acids, to the contact of instruments, of the brush, and of the finger-nails. The sensitiveness of the eroded portion of the tooth is not always the same. When the dentine is not discoloured the eroded surface is very sensitive, even to slight contact of the finger-nail; but if the dentine is dark, the sensitiveness is less. Sensitiveness varies according to the character of the chemical erosion, and its intensity varies in the same eroded surface; it may be more acute in a period of nervous excitement or during a period of dyspeptic crisis. In the latter case it can be questioned whether it is due to salivary hyperacidity or to nervous hyperexcitability of the patient.

How does this "cuneiform deformity" develop? First the gums begin to retract. Bodecker holds that the gums are always inflamed and retracted; the neck of the tooth is exposed; a layer of cement disappears, leaving the dentine unprotected, and small, saucer-shaped cavities, separated from each other, are formed. This erosion becomes gradually deeper, but as a general rule the progress is slow. Nevertheless, upon teeth that are not very strongly organized the erosion becomes very rapidly deep (Znamensky). At this

stage of the disease the pulp begins to react by producing secondary dentine. This secondary dentine is sometimes formed in such great quantities that it fills up completely the pulp-cavity. But, notwithstanding this production, it may happen that the erosion becomes deeper all the time, until it reaches the opposite side and separates the crown from the rest of the tooth. When the course of the disease is rapid (although taking up several years), the pulp may not have enough time to defend itself; it becomes inflamed and dies.

The anterior teeth are attacked with greater frequency than the posterior; those of the right side, according to Franck Acker, more often than those of the left. Bodecker says that the teeth more apt to suffer from erosion are the canines; then follow the bicuspid, and then the incisors. According to Black, the incisors are most frequently affected, the canines coming after.

One tooth alone may be affected, and, again, cases are also on record where all the teeth presented chemical erosions. The same tooth may be eroded in several places. The teeth of the superior maxilla are more liable to suffer from erosion than those of the inferior. Often homologous teeth are attacked. Where the arch is irregular, the teeth projecting inward are seldom attacked.

Walkhoff has pointed out the very interesting fact of "cuneiform defects" observed upon artificial teeth; Wedl, upon teeth inclosed within dermoid cysts of the ovaries; it has also been observed upon the elephant's tusks.

Pathological Anatomy.—The anatomo-pathological observations which are included in the works of Baume, Walkhoff, and Schlenker are not as yet plainly interpreted. Baume, as well as Znamensky, holds that chemical erosion is very unequal, and that it is formed by a line of cup-shaped cavities, analogous to Howship's lacunæ. Walkhoff believes that

these cavities are present at the beginning of the lesion, but denies their existence at a later stage of the disease.

It has been said that around these cavities the dentine presents fissures parallel to the canaliculi, but Schlenker and Walkhoff say that those fissures never exists except in dry preparations, and believe that desiccation produces them. All these authors recognize the existence of a zone more or less narrow of translucent dentine which limits the cuneiform deformity.

Pathogenesis.—Mechanical Theory.—This refers to abrasion, properly speaking. Dr. Cruet in his treatise on pathology, incriminates brushes, powders, and other causes of friction. He says, "Erosion is observed principally in very careful people who use dentifrices to excess." This theory is also admitted by Tomes, Zsigmondy, Salter, Niemeyer, and Parreidt.

Chemico-Mechanical Theory. — Schlenker, Walkhoff, Bastyr, Scheff, and Brandt are the authors who advance and support this theory. Under the influence of chemical elements of a more or less acid character, a thin layer of dentine is decalcified. This softened portion is removed in the act of cleaning the teeth, and by the friction of the cheeks and lips during mastication. The surfaces are glossy on account of friction, and are of a hard consistence, for only the softened portions can be removed.

Bastyr made the following experimental demonstration: He took teeth already attacked and enveloped them in wax, leaving uncovered the eroded spot. He then placed them in an acid solution in such a way that only the eroded surface would be acted upon by the solution. After a few hours the teeth were removed from the solution, and the surface of each erosion was brushed for a few seconds with a soft brush. Little by little the defect became larger and deeper, preserving always a polished and regular bottom.

This theory cannot explain the presence of cuneiform defects upon the teeth of oxen, horses, cows, whose saliva is constantly alkaline; upon teeth found in ovarian cysts, where the liquid is alkaline; upon the elephant's tusks, which are not surrounded by saliva; upon teeth of individuals who never make use of brushes and powders.

Let us recall the opinions of Leber and Rottenstein, who considered the cuneiform defect as a variety of caries of slow evolution, the attacked portions disappearing constantly, and the friction of the cheeks and lips preserving to the diseased surface its apparent polish. They were induced to believe in this theory by observing in the canaliculi under the microscope the presence of leptothrix,—a micro-organism to to which such an essential *role* is attributed in the production of caries.

Chemical Theory.—Coleman denies absolutely the theory of mechanical influence, and it is only to the acids that he attaches a pathogenic importance.

Michaels (Congress of Lyon, 1898) believes in the chemical theory. He attributes erosion to the action of pathologic saliva, and considers that the labial salivary glands play an important *role* in the production of erosion. "These are situated between the muscular coat of the orbicularis oris and the mucous membrane, which is raised on account of their presence. They are very numerous, and surround the entrance to the oral cavity. They are more numerous on the lateral portions than at the level of the commissures. These glands are situated in the substance of the submucous connective tissue, and are surrounded by adipose tissue. "In order to examine these glanular orifices, the lip is raised, and turned outward; it is then dried. After a minute the small drops of liquid which they secrete may be seen on the surface."

What chemical principle in the saliva can dissolve the enamel and produce erosion? According to Michaels, the

alkaline sulphocyanides, whose action he explains in the following way: They dissolve the ossein of the teeth and expose the mineral elements, with which they form sulphocyanides of calcium and soluble phosphates of potassa and ammonia.

Michaels, in order to prove his hypothesis of a chemical reaction in the pathogenesis of erosion, made the following experiment: He placed in a litre of water one gram of potassium sulphocyanide. He plunged into the sulphocyanide solution one of the arms of a capillary tube of the shape of an inverted U; the other one was very pointed, and had attached to it a metallic wire, which in turn held a tooth. After several days the surface of the enamel presented erosions absolutely similar to those found in the mouth of individuals suffering from this lesion.

Mechanico-Vital Theory.—Baume holds that the superficial layer of dentine not covered by gum-tissue or by enamel dies and fall out mechanically, being exfoliated by the friction of the lips, brushes, etc.

Schlenker, Walkhoff, Bastyr, and Miller object that the layers of mortified dentine cannot have any sensitivity, and that, on the contrary, the surface of the chemical erosions is nearly always exceedingly sensitive.

Dentinal Theory of Znamensky.—We give this name to the idea of Professor Znamensky for the following reason: According to him, the cuneiform defects are only a modification of the dentine,—a modification that may take place even outside of the mouth, but whose production is facilitated in certain conditions as yet unknown, and probably due to the diathesis of the individual. According to Znamensky, the enamel does not take any part in the formation of these cuneiform defects. They are due “to a disappearance of the cement substance and to the swelling of the organic portions of dentine.”

Let us recall the composition of dentine, which comprises an organic and an inorganic portion. When treated with an acid which dissolves the calcareous salts, the dentine appears as being made of an organic substance of cartilaginous consistence. This substance, insoluble in water, is transformed into gelatine by boiling. This gelatine is composed of two organic substance,—ossein and elastine. The ossein is analogous to the substance of which the connective tissue fibres are composed,—the collagen substance. The ossein is transformed into gelatine when submitted to the action of dilute acids carried to the temperature of boiling water or by submitting it to the action of water overheated in the Papin boiler.

Elastin is an albuminoid substance found in abundant quantities in elastic fibres. It is insoluble in dilute acids, but decomposes under the action of sulphuric acid or of concentrated nitric acid; hence it is more resistant to the chemical agents than ossein. Elastin is probably the substance that forms the walls of the canaliculi and the sheaths of Neumann. After treating the dentine with an acid, and then the organic matter by boiling, the greatest part of this is transformed into gelatine and an insoluble residue remains; this is elastine (Amoedo in "Poirier's Anatomy").

According to Znamensky, the starting-point of the affection is in the organic substance, which he calls the *dentoidin*, which would disappear in lesser or greater quantity. To confirm this hypothesis, Znamensky has tried to verify it experimentally upon teeth by boiling them in an acid medium and by heating. For the boiling procedure he uses a twenty to twenty-five per cent. solution of hydrochloride acid, which he places in the Papin boiler. The temperature in this boiler varies from 105° to 160° C., a temperature at which occurs a more or less complete disappearance of the organic substance. At 105°, 110°, or 115° only the superficial portions of the

enamel are touched ; the organic substance disappears, and the calcareous salts, not being supported any more, also disintegrate. The erosion obtained in this way can be very well polished with a hard brush, and takes the form of a cuneiform defect. The rest of the tooth was protected with a plate of tin, having an opening to permit the brushing of the root near the neck. At a higher temperature the salts of calcium separate with greater facility, and the cavity becomes deeper; the translucency of the dentine, too, is more extended. Under the microscope, saucer-shaped depressions are seen, while to the naked eye its surface appears glossy and polished. Beyond 125° the dentine of the whole tooth becomes vitreous and transparent.

In all these experiments the enamel lost very little of its hardness ; it merely became brittle. It resisted the action of the brush, and the cuneiform defect was limited in proportion to the quantity of dentine removed from beneath.

Znamensky compares the action of *dentoidin* to that of oxyphosphate in the combination of cement and amalgam. If this mixture is put in a twenty to twenty-five per cent. solution of hydrochloric acid, the oxyphosphate dissolves : the amalgam remains intact, but is only a powder of amalgam, without any cohesion.

In another series of experiments, and in order to act upon merely a limited portion of the tooth, Znamensky used the heating process ; it is done by implanting teeth in a thick mass of plaster of Paris, and only leaving the necks of the teeth exposed, against which the point of the flame of a blow-pipe is directed. He observed that the cavity became deeper the longer the flame was allowed to act. The dechondration has for immediate result to destroy the slight union between the dentine and the enamel. The enamel not being fixed so

tightly as before to the dentine, breaks, sometimes with a dull sound that would make it seem as if the dentine were swollen on the inside. The dentine appears as a semi-transparent girdle upon the borders of the portion that disappears.

With regard to the polish of the eroded surface, Znamensky holds that it is an inherent characteristic of the constitution of dentine, as is the case in stearin sections, which are always regular and smooth, even when they have been made with a blunt knife. He considers erosion in some way as a dentinal function, independent of all chemical or mechanical action (which would then become accessory, secondary). Znamensky undertakes to explain in this way the cuneiform defects of teeth included within an ovarian cyst, and of the elephant tusks in their extra-buccal portion. The mechanical agents can only hasten the mechanical separation of the isolated portion.

He also explains the different aspects of erosion: When the loss of organic substance is slight, the calcium salts, which are solidly held together, disintegrate gradually and with difficulty, in such a way that the surface is always smooth. If, on the contrary, the dentoidin disappears *en masse*, the calcareous salts separate very easily, and a series of saucer-shaped cavities appear on the surface of the eroded spot.

Etiology.—The pathogenic theories that have been described have all some facts to support them. We see, however, by their number and variety that the question of etiology is as yet in obscurity.

The chemical erosion is found at all periods of life after the ages of twenty or twenty-five; there is no record of cases in younger persons. According to Znamensky, it generally attacks old people, but we believe that, on the contrary, this

disease attains its maximum development and acuteness from thirty-five to fifty years. It is at this period of life that we see the greatest number of people complain of sensitiveness to contact, cold, etc. It is at this period that erosion is most active. Later on the secondary dentine has defended and fortified the attacked portion, unless caries has not continued the destruction of the teeth. The proportion of men suffering from erosion is greater than that of women. It is observed in all latitudes, but nevertheless the warm and humid climates exercise an undeniable predisposing cause (Snyder, *Dental Review*, February, 1898).

Among the other predisposing causes there is one which is of capital importance. This is arthritism, and especially the form having gouty manifestations. Seventy per cent. of Snyder's cases were observed in gouty individuals. It is known that arthritism is the great predisposing cause of pyorrhea alveolaris, nevertheless there is certainly no concomitancy between these two affections. The arthritic with pyorrhea has tartar in quantity, often gingivitis, due to this cause; the teeth are generally of a yellow colour; the alveolo-dental articulations are weak; early in life the child presents slight congestive manifestations; the teeth become slightly loose, and other slight phenomena which we may call the "minor signs" of polyarthrititis. It is a rheumatism of all the articulations; it is sometimes of diabetic origin.

The arthritic with erosion has no tartar. On the contrary, his teeth are very white, always polished, and very solidly fixed in the alveoli. At the level of the erosion great sensitiveness exists to cold, especially to fresh air, to acids, to sugar, and even to salt. The patient is generally a neuro-arthritic, with acid dyspepsia, predisposed to nephritic colics, and to gravel. These rheumatic manifestations are altogether abarticular, tendinous, and muscular. It is frequently in a

gouty person, and never in a diabetic, that erosions are active. In the same way as a gouty individual can become a simple rheumatic, so also in the arthritic the erosions may be arrested. They cease to become extended, to deepen, to become sensitive, and instead he may become an arthritic with pyorrhea. Tartar may then be present ; nevertheless in general the articular infection, the alveolar rarefaction, and the suppuration will take place without any apparent deposit. The polyarthritis will generally be of the dry form so well described by Cruet.

We may remark that the individual presenting these two manifestations of the dental arthritism (erosion and pyorrhea) is first attacked by erosion ; very seldom or never does pyorrhea set in first.

Is there any etiological relation between erosion and caries? Until now researchers have not presented any conclusions in this connection. There seems to be a kind of antagonism between the tooth predisposed to caries, through its calcareous weakness or organic richness, and the tooth predisposed to erosion through its calcareous richness (as the salts become detached from their organic framework) or through its organic weakness,—for the organic framework is too weak to retain the calcareous salts (Baume's thesis), or because of pathological transformations (Znamensky's thesis).

Nevertheless caries may reach an eroded region. The first may have reached the mesial surface, the second the labial surface. In such cases it is very curious to observe that generally the two lesions do not become fused. Caries continues to present itself with its irregular layers of softened dentine, the erosion preserving its smooth aspect and its resistant bottom more or less pigmented.

Treatment.—*Medical*—*General*. Anti-arthritic, anti-

rheumatic, anti-gouty. *Local*: The use of soft brushes, or at least the brushing at the level of the erosions. Use of alkaline dentifrices. Use of antacids, gum arabic, and saccharin (Constantine Paul). *Surgical*: The *Lips* (Michaels), ignipuncture of the labial glands. The *Teeth*—treatment directed against the sensitivity of the erosion. Cauterizations with silver nitrate, with antimony chloride (Michaels), which has the advantage of not staining the teeth. Filling of the cuneiform erosion with gold by preference. Sometimes the teeth can be protected with metallic crowns.

STUDY OF SOME MICROBES OF DENTAL CARIES.*

By J. CHOQUET,

Surgeon Dentist, D.E.D.P. of the Faculté of Paris, Principal
of the Laboratory of Bacteriology and Professor of the
Dental School of Paris.

By our Special Reporter.

(Continued from page 1029, November, 1900.)

CONSIDERATIONS ON THE NON-SPECIFICITY OF THE MICROBES OF DENTAL CARIES.

Continuing his study of "Some Microbes of Dental Caries," Mons. Choquet went on to deal with the question of the non-specificity of the microbes that cause caries. At one time he had inclined, he said, to the opinion of "the specificity of

* Read before the International Dental Congress at Paris, 1900.

certain micro-organisms in the production of dental caries," but just in proportion as we had made a thorough study of the question, as he had cultivated the different species found in the deep strata of the dentine, or in its superficial layers, he had become more and more convinced that there was not, and could not be, a specific microbe of the affection in the proper acceptance of the term.

"Indeed," said he, "if one refers to the chemico-parasitic theory, one finds this affection presents two absolutely distinct and clearly definite phases :

1st. Decalcification of the most external portions of the tooth, and the integuments, in a word ; arising as a consequence of the secretions formed by certain micro-organisms which have still to be determined, although the work of Leon Williams has advanced the question enormously towards solution.

2nd. Penetration of these micro-organisms, acid-producers (or other species) into the living tissues, in which they can develop themselves quite at their ease, if one speaks in reference to dental histology, dentine itself, canaliculi of the dentine, Tomes' fibrilles, and above all, in any fault of structure, such as the interglobular spaces of Czermarck.

According to the definition just given by our excellent friend and colleague, Dr. Frey, caries is always an affection proceeding from without inwards. In our opinion once the decalcification has taken place, it is no longer the same microbes that are acting, they give place, so to speak, to an infinity of other species, which by reason of their relatively small volume, are easily able to penetrate, whether the fundamental substance of the dentine which has been slightly decalcified whether in the canaliculi themselves, which as is known, present the least possible resistance, and the greatest number of ramifications in the neighbourhood of enamel.

(To be continued).

British Journal of Dental Science.

LONDON, AUGUST 1, 1901.

DENTAL ETHICS.

Those who have followed the late proceedings of the General Medical Council will have noted that the new code of dental ethics is becoming more stringent. Hitherto only those dentists who had obtained a diploma, on the condition of not behaving unprofessionally, were debarred from advertising. All others on the Register seemed to be at liberty to please themselves, as no one interfered. This is rapidly being changed. The Council is now interfering to some purpose, and the cases of the Nottingham dentists will bring home to the minds of many registered men that if they wish their names to remain on the Register, they must discontinue advertisements of a disgraceful nature. To some this will appear to be a distinct hardship, as they complain with much reason that dental companies are allowed to advertise in the most wholesale and disgraceful way, as the law and the Council have no power to stop them. The Medical Acts Amendment Bill has again been dropped, and there seems no hope of it passing for a long time to come. There is a certain class of practitioner who is at the present time "between the devil and the deep sea." He is not highly trained like the young L.D.S.'s, who are thronging into the profession and who command good fees, and he is not allowed to advertise in the same manner as the many companies who attract business in this manner. What is he to do? It is a hard question to answer, and we cannot pretend to give a wholly satisfactory

reply. In any great movement there is bound to be a certain section which has to suffer, and the dentist whom we have pictured is the one who is suffering at present. He has been brought up to a certain kind of practice, and he is "too old," perchance, "to change" and must command our sympathy.

But is there no way out of the difficulty? Is he too old to change? Times change, and those who are wise see the change and adapt themselves to it. The methods of the advertiser and the Company are only suited to a certain class, and the mainstay of the private dentist is that he can give a section of the community what the Company never can. He can give his clients privacy, refinement, individual attention, personal sympathy and gentleness. His aim is to act so that his patient will seek him again and will refuse to go elsewhere, being sure that he will receive honourable treatment and the best the dentist has to give. The Companies on the other hand depend on their advertisements for a constant supply of new patients who are treated by an ever-changing staff of assistants. These have no personal interest in their patients, save that of gaining the highest fee possible for the least amount of trouble.

The private dentist ought to have no occasion, or no wish to compete on those lines. Let those who murmur at the present state of things ask themselves how much of their diminution of practice is due to themselves and their methods. Do they do their best to keep themselves abreast with the advances in the science and art of their craft? Are they as particular as they should be in their persons and their operating rooms? Do they show that gentleness and respect for the weak and timid that they should? Do they show that firmness and respect for themselves that occasion often warrants? One thing is quite certain, that the wheel of reform that has begun to move will turn, not more slowly, but more rapidly, and dental ethics will become as strict as those in the other professions. Those who are wise will shape their conduct accordingly.

THE NEW CODE OF DENTAL ETHICS.—The *Medical Press* says, "Little by little the dental code of ethics is undergoing evolution, the General Medical Council not proceeding *per saltum*. Hitherto, dentists who obtained admission to the Dentists' Register on the ground of having been in practice before 1878 virtually rejoiced in the right to advertise, they having signed no undertaking not to do so. *Nous avons change tout cela*. Three dentists belonging to that category have been hauled over the coals, and have been dismissed with the injunction to sin no more, but the principle is now formally laid down, a fact which will revolutionize the methods of obtaining practice in favour with many of the older men. An amusing charge was brought against a Southampton dentist, viz., that he had allowed his wife to perform a certain dental operation as his assistant, and though he disclaimed any knowledge of the particular sin laid to his charge, he confessed to the heinous offence of having permitted his wife to clean teeth when he was busy. The humorous aspect of the charge, it may be supposed, appealed to the Council, who lost no time in acquitting him of professional misconduct, but this indulgence, it may be assumed, does not authorize dentists' wives acting as unqualified assistants. Fortunately, not many of them take kindly to the work, so that this form of competition is hardly likely to imperil the financial success of the fraternity."

THE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Mr. Henry Greenway Howse was on July 11 elected President of the Royal College of Surgeons of England. Mr. Howse was a student of Guy's Hospital, whence he qualified with the Membership of the Royal College of Surgeons of England in 1865. He obtained the M.B. of London in the following year, and the Fellowship of the Royal College of Surgeons of England and the M.S. of the University of London in 1868. Mr. Howse has been a member of the surgical staff of Guy's Hospital for many years, and he is now the senior surgeon and the lecturer on surgery. He

has contributed numerous papers on various surgical subjects to Guy's Hospital reports, to the Transactions of the societies, and to the medical journals. We offer him our congratulations on the honour conferred upon him.

DENTISTS AT THE FRONT.—A great deal of inconvenience and suffering has been caused to the troops at the front by the want of provision for dental cases. Colonel Brookfield put a question to the Government on the subject, and mentioned the hard case of a sergeant who at Kroonstad by some accident broke the plate holding his set of false teeth, and could neither eat nor give an order. Nothing could be done for him nearer than Capetown, and he was granted leave to go there. Before the sergeant could start there came a fight with the Boers, in which he was twice wounded, and had to go into hospital. Mr. Brodrick, in answer to Colonel Brookfield, stated that the question of providing dental surgical attendance for the field force in South Africa had been and was receiving the careful attention of the Government. Four dentists were despatched on the 17th of June. In addition a number of refugee dentists had been engaged and employed. In connection with Colonel Brookfield's enquiry it may be noted that, according to information received from a trustworthy source, no less than 80 per cent. of the younger troops suffer from defective teeth.

FALSE TEETH FOR WORKHOUSE INMATE.—The Abingdon Board of Guardians received a recommendation by the House Committee, on a report of a medical officer, that a female inmate, aged forty, should be supplied with a set of false teeth. It was urged as a reason for the recommendation that the woman's health suffered from defective digestion. One Guardian said he should like to be supplied with a set, and another confessed that he had had no teeth for fifteen years. Another member suggested minced food for those inmates

without teeth. On the other hand, it was urged that teeth in this instance were in the nature of a surgical appliance, and the recommendation was ultimately adopted.

VACCINATION AND THE EARLY DECAY OF THE TEETH.—A correspondent to the *Northampton Mercury* writes:—“At the Brackley Board of Guardians the other day Colonel Preston, the Local Government Board Inspector, is reported to have spoken thus:—‘He hoped the Guardians would not think him a faddist, but he would suggest that they should have the teeth of the children in the Workhouse seen to at stated intervals by a competent dentist. He pointed out that many recruits for the Army and Navy were rejected on account of their bad teeth.’ Could you, in this connection, kindly afford space for the following extracts from a pamphlet written some time ago by Mr. Albert Carter, a surgeon dentist of repute. Mr. Carter says that ‘during a course of rather extended travel he has examined the teeth of men in nearly all conditions of civilization and barbarism, and the outcome of his observations amounts to this: That wherever the people are not vaccinated their teeth are sound, but wherever the practice of vaccination has been introduced, the teeth of the people deteriorate just in proportion as the population comes under the influence of vaccine.’ Mr. Carter then logically says: ‘Seeing, then, that vaccination is accompanied in all parts of the world by rottenness of teeth, is it unreasonable to conclude that it is in some way the cause of that rottenness? In considering the probable effect of vaccination upon the teeth, it must be remembered that the child’s health is affected by it just when the germs of the permanent teeth are undergoing their earliest formation. Now, no fact is better known to physiologists than that any severe constitutional derangement in early childhood leaves an indelible mark upon the teeth.’ In view of such facts as the foregoing, does it not appear obvious that the early decay of the teeth,

with all its concomitant evils, might be avoided by the abandonment of the practice of vaccination?"

SINGULAR CAUSE OF FIRE.—A fire broke out recently at a house on the top of Fore Hill, Ely. Mr. Mudie, a dentist, had recently fitted up a laboratory facing the south, and it appears the concentrated rays of the sun caused combustion of some chemical substance, the room being discovered in flames. Several sets of false teeth, ready to hand to customers, and other property to the extent of £50, were destroyed. The loss is covered by insurance. We have pointed out on a former occasion that the globe used by some dentists to concentrate light, may act as a burning-glass.

THE DANGERS OF CHLOROFORM AND ETHER.—A dentist writes to the *Sydney Bulletin*:—"I had a patient who insisted on having her teeth extracted (although I strongly advised filling)—an operation too long for use of laughing-gas. An experienced medico, whom I called in advised against giving chloroform for a time, so I filled temporarily. But the patient went to another dentist, and a medico administered ether. The woman died four days afterwards from acute pneumonia—in my opinion consequent upon ether administration. The gist of the whole matter: they die from chloroform at the time, but with ether they die some days afterwards from pneumonia, bronchitis, &c.

Mr. F. W. Collingwood has presented to the museum of the Royal College of Surgeons a curious native instrument for opening abscesses; it comes from Funafuti, one of the Ellice Islands, and consists of a shark's tooth fastened to a small rod.

Swallowing her false teeth, the wife of a Liverpool joiner named Stubbs died after an operation for their removal.

WILLS.—Mr. Henry John Barrett, of Swakeleys, near Uxbridge, and formerly of the firm of Craigie and Barrett, of Finsbury-square, dentists, who died on June 5 last, aged 77 years, and whose estate has been valued at £195,776 5s. 4d. gross, bequeathed to the London Hospital £200, to the Dental Hospital of London £200, to the vicar of Blackmore, Ingatestone, towards the restoration of the spire of the church £300, and to Ashley W. Barrett, £25,000.

A NAPOLEON—AND A DENTIST.—A despatch from Montreal, to the *Patrie* states that there is in the town a dentist named W. H. Dion-Young, who is a direct lineal descendant of Napoleon's elder brother, Joseph, and that he is now about to enter into some portion of his ancestor's wealth, of which, on Joseph Bonaparte's death in 1844, the French Government ear-marked one-third for the benefit of unknown heirs in America. After sixty-one years this portion, amounting, it was stated, to several million francs, is to be handed over to Mr. Dion-Young.

ARTIFICIAL TEETH.—There is no powder which you can use habitually to help to produce increased suction of artificial teeth. It used continually it would irritate the mucous membrane and make matters worse. When fitting a new set, and artificial mucous is often made, just to start the wearer until the natural mucous is formed on the plate. If the fit is not quite perfect, the air cannot be exhausted from under the plate, and suction is imperfect or only partial, and some mouths present a greater difficulty than others.—*Echo*.

Abstracts of British & Foreign Journals.

CAUSES FOR THE FAILURE OF AMALGAM FILLINGS.

By E. K. WEDELSTÆDT, D.D.S., St. Paul, Minn.

Some of the reasons why amalgam fillings fail are:—1. Placing the amalgam on a mass of decay. 2. Improper cavity preparation. This is subdivided into—*a.* Non-extension for prevention. *b.* Non-removal of overhanging margins of enamel. *c.* Flaring margins. *d.* Improper anchorage: too large and too deep undercuts. 3rd. Using alloys of which nothing is known. 4th. Improper mixing and non-condensation of amalgam. 5th. Improper finishing of fillings, and 6th. Stress. There are others, but these are most important.

1st. Placing the amalgam on a mass of decay. This was given first because about 99 per cent. of the amalgam fillings which I remove have a mass of soft decay as a foundation. It has been taught for a number of years that this was a good method to follow, as the amalgam caused a "recalcification of the decayed dentine." (Flagg). Now this teaching is wrong and it is also misleading. When life has passed out of an object it is dead. If this dead object be left in contact with anything that is in a healthy condition, it is but a question of time when that in which there was health is also dead. It can be said with just as much truth, that if a man died and is buried, and six months later his remains are dug up and the dead mass rolled in carbolic acid for a week, he would again become an animate being. This is not possible, and it is also impossible for any filling material to cause a "recalcification of decayed dentine."

Recently a young woman consulted me regarding the condition of an upper right first molar. On the lingual side was an amalgam filling that occupied about one-fifth of the surface. On the occlusal side was a large amalgam filling

which occupied about two-thirds of the grinding surface. The mesial surface had a small amalgam filling in it and there was a cavity of decay adjoining same. The rubber dam was adjusted, the teeth separated and mesial filling removed. Not being satisfied with the appearance of the tooth, I removed the amalgam filling in occlusal surface. Under this amalgam was a mass of cement; it was also cut out. The cement had for foundation a large mass of leathery decay. Long before all the decay had been removed the pulp was exposed and it had little vitality. The amalgam filling that had been placed in lingual surface rested against the decay that was under the cement in the occlusal portion of tooth. The patient informed me that the filling on the occlusal was made first; about two years later the filling on the lingual, and about eighteen months ago the mesial had been made. This tooth was rapidly degenerating on account of the poor work done upon it. If the soft decay which was in the occlusal surface had been removed when the tooth was first filled, I do not believe it would have been necessary to make the lingual and mesial fillings. Furthermore, if the mesial cavity had been thoroughly filled without removing the decay from the pulpo-axial wall, that was under the cement in the occlusal portion of the tooth, within two years there would have been a cavity in the distal surface. That tooth would have continued to decay until there was an alteration in its condition. This may seem heresy, but it is the truth. I have followed similar cases, and am perfectly aware what the results are. This young woman insisted that every filling in her teeth be removed, as the same man had made them all. It is needless to say that every filling removed had a mass of soft decay for a foundation.

2nd. Improper cavity preparation. a. Non-extension for prevention. All proximal cavities that have an adjoining tooth beside them should have the margins so extended that they are in self-cleansing territories. Recurrence of decay takes place where this teaching is not followed. I have absolutely no patience with writers who assert that decay does not readily take place around the margins of amalgam fillings. Here are some filled teeth which may interest you. I do not know the history of these fillings nor anything about them, beyond the fact that their present condition can be charged to non-extension for prevention. I note in the occlusal surface of many teeth round amalgam fillings which are about a millimeter and a half in diameter. Leading from these fillings are fissures which were not included in the

original cavity preparation. Extension for prevention is applicable to the occlusal as well as the proximal surfaces of the teeth.

b. Non-removal of overhanging margins of enamel. Overhanging margins of enamel should in every case be removed unless supported by dentine. If amalgam be crowded under a ledge of enamel the latter will fracture sooner or later. It is poor practice at best.

c. Flaring margins. It is impossible to have anything else than failure where the margins of our cavities flare from the pulpo-axial wall, provided amalgam is the filling material used. The proper angle for a margin can best be illustrated if I take a book and show the angle.

d. Improper anchorage ; too large and too deep undercuts. Where amalgam fillings are to be made in the proximal surfaces of a tooth, the place of retention should be at right angles to the cavity proper. This is known as an occlusal anchorage. Broad and deep parallel grooves should under no circumstances be cut in the buccal and lingual margins. The filling should be properly set on as broad and flat a seat as possible. It is not necessary to do more than emphasize these teachings. Large and deep undercuts are a menace to the stability of any filling, for the reason that they cannot be filled so perfectly as those which are more shallow. I have yet to see the first filling held in position by large and deep undercuts that has not a dark line in the vicinity of these which indicates that there is a leak. Some time ago I removed an amalgam filling that was leaking badly, from the buccal surface of a lower right first molar. The cavity at the orifice was but two millimeters mesio-distally, but when the filling was finally out the pulpo-axial measurement was five millimeters mesio-distally. There is not a man living who has sufficient skill to make a non-leakable filling in a cavity of that shape.

3rd. Using alloys of which nothing is known. Our journals contain advertisements of this and that alloy. We are constantly being visited by travelling men who allege they have "the only and best alloy that there is on the market." Many of us have purchased and used such alloys and too late have found them absolutely worthless. Sufficient attention has not been called to the utter badness of some of these alloys. We must remember that the majority of amalgams undergo a change during crystallization, and it would be well for us to examine a little more carefully the condition of the teeth in which amalgam fillings have been made in the

past and those which we are at present making. By using a four diameter magnifying glass you can ascertain the condition of your margins. In the main you will find a black ditch around about ninety per cent. of the fillings which you examine. I am a believer in the use of quick-setting amalgams, for I feel better results are obtained with them than with those that are slow setting, and as the value and worth of the former are disseminated and our knowledge increased regarding them, less and less use will be made of the latter. We can be thankful that there are only a few men left who continue to make and use their own alloys. These few will soon learn that it is far better to buy and use reliable alloys than to use those of which nothing is known.

4th. Improper mixing and non-condensation of amalgam. We should remember that alloys are treacherous things and should never be used where another and a better material can be employed. Dr. Black has given us rules for mixing, condensing and using alloys. If these rules are not followed strictly to the letter, failure takes place. Alloys should be well mixed; not overmixed, but about equal parts of mercury and alloy by weight (some require a trifle more mercury than others). After weighing the alloy and mercury they should be transferred to a mortar and lightly triturated, then be well kneaded in the hand. If there is an evidence of too much mercury it should be expressed, then reknead the mass and it is ready. The largest possible piece that can be placed in a cavity should be taken first, and the largest sized plugger that will conveniently go into the cavity should be used to pack it. The best results are obtained by heavy condensation. The fewer pieces of amalgam used the better the results and the less the chances for failure of filling.

5th. Improper finishing of fillings. Dr. J. Leon Williams says that recurrence of decay takes place around the margins of fillings because an "opportunity" is left for the micro-organisms to again attach themselves. It is therefore not only essential but also most necessary to remove all overhanging margins of filling material, or we leave an "opportunity" for the undoing of our work. The same care should be used in finishing amalgam fillings as in finishing gold ones. They should be so polished that we have practically a mirror finish (Ottolengui), and in giving to a filling this polished surface, it is well to remember that a small and well placed contact is worthy of some attention. If this care be taken, one of the principal causes for the recurrence of decay around

the margins of our fillings will become a thing of the past. Nor is this all—it is much easier to keep a mouth cleanly where the fillings are polished. We invite immunity by making work as nearly perfect as possible.

6th. Stress. Somebody has said that “the amount of stress placed on the majority of proximal fillings is something we know little about, and in a year those fillings have had tons and tons of pressure placed on them.” I have seen many fillings that have been strained and moved from their position by the stress of mastication. In fact, a number of my own fillings have been forced from their position by too little attention being paid to occlusion. It is necessary to study the occlusion of the teeth and obtain some adequate idea of the amount of stress a filling will be compelled to withstand. The retention form of our cavity is governed by the amount of wear and tear the filling will be compelled to sustain. If little or no attention is paid to the occlusion of the teeth, more often than we suspect fillings fail by being forced from their position by the stress of mastication. Where slow-setting alloys are used much more care should be given the occlusion, for not infrequently patients bite on the soft amalgam and move it from its position. This movement may be very slight, but it is often more than enough to allow not only the saliva but the food also to enter between the cavity margin and amalgam. This leakage is one cause of the margins around amalgam fillings turning black. So soon as an amalgam filling leaks it should be removed, for it is a menace to the rest of the teeth.

I very greatly deplore some of the past teachings in regard to the use of amalgam. There are many men in our profession who too late in life have learned the utter fallacy of some of the theories advanced. These theories are still extant and there are some who continue to call our attention to their many seeming good qualities. It was only recently that one of our journals contained an essay on “Amalgam,” which was written by one who feels he is an authority on this subject, yet I feel it would be doing the cause of dentistry an injustice if attention were not called to one or two statements the essay contains that are not in harmony with the later teachings. This writer says, “In regard to the making of amalgam alloys, I have for twenty years demonstrated that it was a comparatively easy thing to do, that it needed but little in the way of apparatus and appliances,” etc. I am perfectly willing to acknowledge that it is an easy matter to make

amalgam alloys, *but what kind?* That question should receive our most serious consideration, for the *kind* is of the greatest importance to us. Any man who has an electric furnace, in which he can melt his metals, and who has apparatus and appliances to test the fillings which he makes from the filings of the ingot, is in a position to make his own alloys. A man so equipped can take ten ounces of metal and should have an ingot that weighs that much as the result of his labour. But if he is not so equipped he has no right to make nor to use his own alloys. If he does make and use them, he is more than likely to do great harm to those who trust him implicitly; he is also doing harm to the profession by using materials about which he knows nothing.

If we desire to progress it is necessary to study the condition of the teeth in which amalgam fillings have been placed. I have called your attention to the conditions as I have found them, and feel certain that many will now make similar examinations and see clearly these black ditches. It is necessary to make these examinations, for it is of vital importance to us and to our patients to have that knowledge which can be obtained only by a careful study of the teeth themselves. Why, if our friends of "New Departure" fame had made such examinations, using as powerful a magnifying glass as could conveniently have been employed to examine the conditions of the margins around their amalgam fillings, we should not have had a "New Departure." They would have discovered the conditions, which you will find when you make these studies. They would also have seen that the ordinary amalgam filling was nothing more nor less than a menace to the integrity of the rest of the teeth, that it invited decay through its change of form, and that no reliance could at any time be placed upon it. These conditions have existed for lo, these many years, and our attention should have been called to them in such a manner that others would have awakened to the realization of what results would come from using such worthless materials.

Now there is another thing in relation to this subject that it is important for us to think about, and that is, the idea that many have regarding the burning out of some tin during the melting process. In fact, quite a number of men have said to me that the burning out of from two to ten per cent. of tin did not do any harm to a given formula. This theory was exploded many years ago. If but one-tenth of one per cent. of tin has been burned out from a given formula, we

know that an entirely different product results. We also know that the original formula has been disturbed, consequently different results will be obtained with this new product than would have been the case had the tin not been burned out. Apparatus must therefore be at hand to test every new "melt" and definite knowledge should be the maker's before this alloy is used. I believe the manufacturers of our new high-grade alloys are obtaining definite knowledge of what they are selling us and are not placing on the market that of which they know nothing.

Let us go back to this essay on "Amalgam" and consider another statement. It is, that "Failure of fillings" is *mainly* due to incompatibility of filling material with tooth-bone." This statement is to be regretted, for it is simply a hypothesis that cannot be explained, and is therefore without scientific worth. We know definitely that failure of fillings is mainly due to one fact—the cause which led to the first decay was not fully removed when the cavity was prepared and filled. An "opportunity" was left for the micro-organisms to attach themselves again, with the inevitable result of recurrence of decay. That is the correct and consequently the scientific solution of the whole matter. Let us be thankful that there are only a few left who cling with such great tenacity to the old teachings, the old ideas and to the obsolete methods.—*Dental Digest.*

THE INFLUENCE EXERTED BY AIR UPON THE EXHIBITION OF ANÆSTHETICS.

By GEORGE FLUX, M.D. Brux., L.R.C.P. Lond.,
M.R.C.S. Eng., L.S.A.

Air governs the administration of anæsthetics, by it the patient is enabled to live while he inhales the anæsthetic, and by its instrumentality the dose of the anæsthetic is determined. No manner of administration that involves the

curtailment of a patient's air-supply or that fails to direct the course traversed by the air on its way to a patient can ensure either accuracy of execution or limitation of results. Any patient can be reduced to silence and the stillness necessary for surgical procedure with facile certainty, and for that matter frequently is so reduced, by the least practised of administrators. Unfortunately, the power to force a patient to inhale an anæsthetic vapour is not always associated with the practised knowledge requisite to regulate it, and the patient suffers in consequence; not only does he incur the risk of being semi-asphyxiated or totally asphyxiated, but the risk of receiving an excess of anæsthetic and, if he survives, of being grievously sick for hours.

An enormous amount of literature has been produced from time to time dealing with the very important question as to what should or should not be considered the correct dose of any particular anæsthetic. Physiologists and others have told us the effects produced upon the human body as a whole, and upon different portions of it in particular, by the presence of ascertained proportions of anæsthetics. Probably no one will deny that all patients are dissimilar, that the conditions of every operation differ, that the methods of administration differ, that each administrator employing any particular variety of so-called method does so in a manner peculiar to himself, that practically the only constant factors present at an administration are the anæsthetic and the air, and that unless these two essential factors are under absolute and minute control no hope can ever be entertained that reliability of results will be secured or the true merits of the different anæsthetics established. A uniform dose of any particular anæsthetic is no more likely to fit every patient than is a uniform size of boot, but that is no reason why the means employed to deliver the different anæsthetics in the form of vapour should not act with uniform precision, however much it may be desirable to control and vary their rate of action. It can hardly be contended, for instance, that pouring liquid ether on to a sponge, as with Ormsby's inhaler, or A. C. E. mixture on to a sponge contained in a Rendle's mask, or chloroform on to a towel or "piece" of lint, are in any degree accurate methods of developing and delivering the vapours of these fluids. Neither can it be contended that the quantity of vapour produced by evaporation and inhaled by the patient are under anything like an exact control. The fluid may be poured on to the evaporating surface in successive

and carefully measured amounts and the size of the evaporating surface controlled, but the volume of vapour available for the patient at each inspiration cannot fail to be merely conjectural. The supply of vapour is indefinite at all times, it may be increased or diminished knowingly or unwittingly, but the variations that do occur are variations of unequal and undetermined increments.

It is not my intention to suggest that the allowance of anæsthetic vapour for each successive breath that a patient draws during an administration should be separately made the subject of an abstruse mathematical calculation and intricate fractional measurement, as that would be manifestly impracticable, but I do suggest the propriety of employing methods of administration which shall not curtail a patient's air-supply, and that shall be capable of intentional variation but incapable of indefinite action. It is highly desirable that an administrator of an anæsthetic should be able to be conscious of the exact value of any variations that he may find it advisable to make during an administration, but it is not essential that he should think in figures if his arrangements are such that "more" or "less" means more or less of a definite substance. The sailor who "takes a pull" at the main sheet or "eases it off," as the case may be, does not use a foot rule every time he either gives more or less sheet, but the sheet is the same in length and strength throughout the voyage.

I have said above that air governs the administration of anæsthetics. The fact that it does so may not be apparent at first sight (I refer here to chloroform and its mixtures, to ether, and to nitrous oxide gas) and I will endeavour to show how important a part the air plays in the process. No patient can live long without air. No patient can tolerate without injury, or at least discomfort, any deprivation of his natural air-supply. No anæsthetic can be continuously given in the absence of air. The presence of air is essential to enable the anæsthetic to be efficiently employed. Nitrous oxide gas administration well illustrates this; this gas cannot be given without air (or oxygen) for a period longer than it takes a patient to become asphyxiated; the same holds good with ether and with chloroform: in the case of chloroform, poisoning would probably occur as soon as, or sooner than, asphyxia. The dose inhaled of each of the above-mentioned anæsthetics is regulated by the air-supply. Air cannot be withheld during an administration without simultaneously

compelling the patient to breathe an atmosphere of pure and undiluted anæsthetic vapour. Air cannot during an administration reach a patient without conveying anæsthetic vapour—the air conveys the dose ; the dose conveyed depends upon the amount of anæsthetic vapour taken up by the air *en route*. The opportunity the air has of taking up vapour depends upon the route that the air has taken ; if it has passed over or under the evaporating surface it will contain vapour in proportion to the size of the evaporating area, but if it passes through the evaporating substance it will be saturated with anæsthetic vapour.

Take, for example, the method by which chloroform is administered from a folded towel, a Skinner's frame, or a piece of lint. When held over, but not touching, a patient's face the air entering from below and all round the facepiece takes up and conveys an amount of vapour proportionate to the rate of evaporation and the size of the free evaporating surface. This can in a loose way be depended upon to be more or less uniform. If from any cause the mask is permitted to descend and adapt its margins to the surface of the patient's face the air passes through instead of under the evaporating area, and the whole mass of inhaled air becomes instantly charged to saturation with chloroform, an atmosphere that no living thing can withstand for more than a few seconds, as has frequently been demonstrated on the human subject. When a Rendle's perforated mask, packed with a sponge or other absorbent substance, is employed for giving chloroform mixed with other volatile substances the air regulates the dose in a precisely similar manner, the entering air either picking up vapour given off from the evaporating surface in varying but unknown proportions or becoming saturated with vapour if drawn through the moistened absorbent material. However, as the margins of the inhaler were in contact with the face are hard and cannot therefore fit accurately it seldom happens that all the indrawn air has the opportunity of becoming saturated unless the ingress of the air between the inhaler and the face is deliberately prevented by the administrator ; fortunately this is a matter of some difficulty and one requiring time to accomplish. Some of these mixtures owe their fictitious safety rather to the part played by the air than to their composition. It has not been shown in the case of any one of them that the chloroform contained in them is less readily absorbed when inhaled, or

when absorbed less potent. Were it so the utility of the chloroform in the mixture would not be obvious.

In order to ensure that the amount of anæsthetic vapour inhaled by a patient at any particular breath is the same as the administrator hopes it to be, it is necessary to employ a system of developing and of conveying vapour which shall not be liable to dangerous or spontaneous vagaries. In such a system it is desirable to work through the agency of some one instrument the action of which is constant. That instrument, fortunately, is invariably present—namely, the air. Air can only take up and convey at atmospheric pressure and at any given temperature and pressure (conditions that do not appreciably vary during any given administration) a definite maximum amount of any particular anæsthetic vapour, so that by controlling the amount of inspired air that is permitted to influence the supply of anæsthetic vapour the proportion of anæsthetic present in the air at each inspiration can be gently and evenly raised or lowered as occasion requires.

As I said before, it is the air which ultimately determines the amount of anæsthetic inhaled, but—and herein lies the difference between the methods usually employed and the system which I now advocate—in the former the air is excluded from, or admitted to the patient without regard to the influence exerted by the air upon the magnitude of the dose of the anæsthetic employed; in the latter the air is not excluded from the patient, and its natural properties are purposely employed to govern and limit the output of anæsthetic vapour, and the anæsthetist manages the anæsthetic by means of the air rather than in defiance of it. Until it is recognised that during the administration of any anæsthetic every alteration that occurs to a patient's air-supply produces simultaneous alteration in the dose of anæsthetic inhaled the dangers that arise from unsuspected variations are likely to continue. He who administers an anæsthetic has two widely differing tasks to perform. Firstly, he has to exercise his judgment both as to the limited effects he wishes to produce upon the patient by the anæsthetic and as to the variations in dosage requisite to keep his patient in a satisfactory condition; and secondly, he has to act up to his judgment, and, therefore, unless he is a position to dispense his anæsthetic vapour with accuracy his performance must of necessity be uncertain. The dangers that do arise from unsuspected or uncontrolled variations are not rendered less frequent by the very prevalent custom of

regulating the dose according to the effects produced (in contra-distinction to regulating the effects by the dose). This custom has, especially when the equipment which is employed to exhibit the anæsthetic vapour is in the least degree indefinite in its action, the great drawback that very undesirable effects are liable to be established prior to their becoming apparent to the administrator whose subsequent efforts to regulate his dose may be too late. There is another drawback to this custom—namely, that unpractised administrators are prone to give their patients the most that they can stand short of their exhibiting actual symptoms of poisoning, rather than to restrict their administration to the limits of efficiency—a proceeding requiring the exercise of considerably greater judgment.

The system of administering anæsthetics by means of the air is simple and has the advantage that it is equally applicable to all anæsthetics. It consists, not in attempting to control the output of vapour by varying the copiousness of the source of supply, which under this system is a matter of indifference, but in regulating the amount of fresh air that is permitted to take up fresh anæsthetic vapour at each inspiration, this amount being, although definite in composition, variable in quantity at discretion, and it becomes added to the fresh air which completes the inspiratory volume. The essential points in respect of the equipment employed for utilising this system are that it should be absolutely incapable of spontaneous alteration in either shape or condition—of being varied in action by the patient—or of automatic action. Specially constructed apparatus is not necessary when these conditions are present. I should like to emphasize the fact that administration by means of air is only a system for providing a patient with the vapour in a definite manner; the amount administered must, as in the case of all therapeutic agents, be a question entirely of judgment; but of one thing I am certain, and that is that the system cannot until nature changes the property of air, play its employer false. Personally I use, when carrying out this system in its entirety, apparatus of my own devising—namely, an inhaler for chloroform, an open apparatus for nitrous oxide gas, a special form of stopcock for use with nitrous oxide or for use when employing Clover's ether inhaler, whether with or without gas. These were made originally for me by Mr. J. H. Montague, of 101, New Bond-street, W.—*Lancet*.

OPERATIONS ON THE UPPER AND LOWER JAW.

Professor Carl Schlatter spoke in the Zürich Medical Society on this subject. The dangers of the aspiration of blood during operations on the maxilla can be avoided by incomplete narcosis, which, however, is most distressing to the patient, makes the operation much more difficult, and necessitates more haste than is desirable in the case of removal of malignant tumours. Professor Schlatter recommends preliminary compression or ligature of the external carotid if necessary, also of the internal carotid artery, especially in the case of anæmic patients, who, however, should not be suffering from arterio-sclerosis. At the same time this gives the operator the great advantage of removing metastatically diseased glands, which first appear along the carotids and are often overlooked. This latter fact explains the high percentage of recurrence of malignant tumours of the upper jaw. The direct (immediate) mortality of the operations of resection of the maxilla is already very high—from 14 to 31 per cent. (Bryant, Martens)—so that the results in the Zürich surgical wards seem especially satisfactory, there being only one case of death on record out of 34 cases of total resection of the upper jaw for malignant tumour; but the proportion of recurrence is high—Konig reports 33 out of 47 patients and the Zürich clinique 23 out of 34 cases. Professor Schlatter, speaking of three cases which he successfully operated on, prefers either temporary ligature of the common carotid artery with thin india-rubber tubing or permanent ligature of the external carotid, the hæmorrhage during operation being thereby greatly reduced. Dr. Stoppani, dental surgeon of Zürich, supplied the patients with excellent prostheses which corrected both prolapse of the bulb of the eye and deficient speech. Professor Schlatter showed a girl, aged 17 years, from whose mandibula he resected some three inches for myelogenic sarcoma occurring six and a half years ago. After the operation he introduced a "prothese immediate" and a month later a definite prothesis made of gutta-percha and surmounted with false teeth; this prothesis, which fitted perfectly and could be taken out and cleaned after meals, had to be renewed four times in six years, corresponding to the growth of the skeleton. The present functional and cos-

metic result is perfect ; only a slight cicatrix on the outside of the jaw indicates the line of operation, and speech and mastication are both satisfactory. Dr. Stoppani's prosthesis with perforated metal side splints proved most valuable ; it makes the surgeon independent of the dental surgeon during and immediately after the operation, the chin does not retract, the wound can be kept antiseptically clean, and a cast can be made without more than a short removal of the "prothese immediate" from which the definite prosthesis can be constructed.—*Lancet*.

CHINESE DENTISTS.

A novel account of the manner in which Chinese dentists operate on their patients is contributed by a German naval surgeon who has just returned from Peking.

They use, he says, neither pincers nor any other surgical instruments such as are used in Europe, employing instead their fingers for the purpose of extracting teeth. This difficult operation they perform with a dexterity and skill that might well excite the envy of their European colleagues. The tooth which is to be extracted is grasped by the thumb and index finger, and is then pulled out, the force necessary for such work being equivalent to 100, 150, and sometimes 190 kilogrammes.

The Chinaman who decides to become a dentist practices this feat from his sixteenth year by pulling out from an ebony plank ivory pegs of various sizes, which have been firmly fixed in it. In this way he acquires a surprising knack, so that it becomes easy for him to draw out a molar or a wisdom tooth without ever being obliged to make a second attempt. That his patients suffer during the operation is admitted, but it is claimed that their pain is of very brief duration.

For the purpose of cleaning his patient's teeth the Chinese dentist uses powder made from the bones of the cuttle fish, which he applies by means of small bamboo instruments. His

cure for toothache is a pill of opium and some oil of mint, which is to be rubbed on the jaws.

Of the art of filling teeth with gold or any other metal he is profoundly ignorant, and whenever he has to deal with a decayed tooth which he cannot remove he satisfies himself by filling it with a paste.

“HIGHER” DENTAL DEGREES.

If there be any one thing that has done more than another to bar the unity and the progress of the medical profession as a whole, that accursed thing is the multi-portal system of entrance into the inner precincts of qualification. That fact stands out as a kind of rock which the medical reformer selects as the base of his operations. For generations past those who have been crying in the wilderness for changes that are still to come have inscribed upon their banner the watchword of a one-portal system. It certainly savours of the backward path, therefore, when the dentists begin to create distinctions and variations of examination standard in their special qualifications. Something of the kind, however, appears to be in the mind of those responsible for the regulations of the University of Birmingham. They do not propose to grant any qualifying licence to practice dental surgery, a position that is understandable enough. What they have done is to invent a new degree in the shape of a Bachelorship of Dental Surgery which is open to those who have obtained a registrable license elsewhere at least a year previously. The curriculum involves several extra subjects and extra courses, and the examination in the case of anatomy and physiology will be identical with those passed by ordinary medical students. Why a young and enterprising University should revert to the exploded multi portal system at this time of day is an inexplicable mystery.—*The Medical Press.*

MODELS FROM PLASTER IMPRESSIONS.—Varnish the impression with thin collodion; dust this surface with talcum, brushing away all loose powder with a large camel's-hair brush. The model made from this impression will have a hard, smooth, almost polished surface.—D. H. PAINE, *Items of Interest.*

INSTRUMENTAL IMPERFECTIONS.

In no department of surgery, perhaps, is it more necessary for the operator to pass his instruments in review before using them than in laryngological and nasal work. Several instances are on record in which the nozzles of insufflators or sprays have become detached and have actually fallen into the larynx or even beyond, with, in some instances, very untoward and even fatal results. One such incident occurred in the practised hands of the late Sir Morell Mackenzie, and although his distinguished patient ultimately coughed up the foreign body it was not until after a period of intense anxiety to all concerned. More recently two cases have been reported in which the curette used for the removal of adenoids broke off at the junction of the sharpened spoon with the shaft. In one case the piece was removed without incident. In the other it was swallowed, and the piece was passed in the stools three days later. Similar accidents have occurred in the hands of dentists, and have given rise to actions for damages, happily unsuccessful, because it is hardly fair to hold the dentist responsible for defects which he could hardly be expected to be cognisant. The moral is that care should be taken as a matter of routine to inspect an instrument before using it. The consequences of the entrance of a foreign body into the trachea are such as to make the boldest shudder, in view of the extreme difficulty of removing the intruder.—*The Medical Press.*

Reports of Societies.

STUDENTS' SOCIETY,
NATIONAL DENTAL HOSPITAL.

The usual Monthly Meeting of the Society was held on Friday, June 7th, the President, Dr. Maughan, in the chair.

The following gentlemen were elected members of the Society: Messrs. J. K. Clark, S. Colyer, F. W. Bond,

W. S. Rose, G. D. Winter, D. V. Hoddy, M. Jackson, F. Gordon, H. Swann, G. W. Wright, and W. A. Thompson, and Mr. Morris was proposed.

Upon Casuals being called for, Mr. Green showed an interesting case of retarded eruption of a canine in the upper jaw of a man, aged 60. He was wearing a denture which the erupting canine had caused to rock, only the top of the tooth was showing. Mr. Green extracted the canine, which was found much exostosed.

Mr. Haskew showed a well marked case of attrition which had caused exposure of the pulps.

Mr. Farmer showed two cases of pulp nodules, one being free in the pulp chamber, whilst the other was embedded in a mass of secondary dentine.

The Chairman then called on Mr. Mosely for his paper, published on page 625.

At the conclusion of Mr. Mosely's interesting paper, Mr. Farmer, who was now in the chair, owing to the President being called away, congratulated Mr. Mosely on the excellence of his paper, and invited all present to join in the discussion.

Mr. Black remarked that Mr. Mosely had evidently forgotten to mention that the breaking of a drill up a root was often due to the carelessness of the operator in not keeping his instruments clean. He also spoke against devitalization by the immediate method.

Mr. Bond speaking on behalf of the Colonial Contingent spoke strongly in favour of this method, and mentioned several successful cases which he himself had seen.

Mr. Blundell also spoke in favour of it.

Mr. Mosely in rising to reply to the various criticisms, said that he was much obliged by the members present letting him off so easily, he had expected a warm half hour. He also thanked them for the way in which they had received his paper. In reply to Mr. Black he said that only a careless operator allowed his drills to get rusty, and a worse than careless one used them when they were so. With regard to immediate devitalization he thought that those who had adversely criticised him on that point, had been well answered by Mr. Bond and the other Colonial gentlemen.

The meeting then adjourned to the common room where refreshments were provided.

Dental News.

WHAT IS THE INTERNATIONAL DENTAL FEDERATION ?

By GEORGE CUNNINGHAM, D.M.D., L.D.S. Eng.

In the last number of *L'Odontologie* (15.7.1901), Dr. Sauvez answers the above interesting question in a very telling way. His article is entitled "La Saison Professionnelle de 1901," and discusses not only the International but the French National Federation Meetings, arranged to be held, first, at London and Cambridge, and second, at Ajaccio.

He points out that for the first time the Executive Council of the *Fédération Dentaire Internationale* (F.D.I.) will meet this year in London during the Annual Meeting of the British Dental Association (B.D.A.), and also at the same time and place the first meeting of the International Committee on Education will be held.

"It appears to us useful, on the eve of these different reunions, to endeavour to explain the formation, constitution, aims of these different bodies which are of recent creation, and to give a short exposition for the members of the profession, of these different products which originated from the *Congrès Dentaire International de 1900* (C.D.I.). We have purposely used these abbreviations in order to avoid needless repetition ; we apologise in advance for the algebraical form.

I. LONDON.

The *Fédération Dentaire Internationale* is a union of all the national committees which were constituted for the International Dental Congress of 1900.

One remembers how these national committees were called into existence. For the countries where there already existed a federation of professional societies, for example, in America, in England, &c., the Committee of Organisation addressed itself naturally to those federations and asked them to nominate a national committee. In those countries where no federations existed, the committee addressed itself to the professional societies of the different countries, and asked them to place themselves in relation the one with the other,

in order to nominate a certain number of delegates, in a proportion relative to the number of members of the different societies.

We purposely recall these facts in order to show in what liberal spirit the national committees were constituted, and to show that the F.D.I., which is formed of these same committees, is indeed the authorised representative of the different dental societies of the world.

This is what the International Dental Congress of 1900 thought. The Congress has in fact decided that that International federation should be created, and that it should be constituted by the national committees which had formed it.

We have just shown under what circumstances the F.D.I. was constituted. Let us add in addition that this international organisation will admit into its midst the societies or federations of societies which will send in their adhesion and which are acceptable.

The F.D.I. has for its object :

The arrangement of international meetings and dental congresses.

The preservation and the promotion of the bonds which attach the different national committees and societies together.

The organisation of such international committees as it thinks it wise to appoint.

In a general way the organisation of all that can attribute to the advancement of dental science throughout the world.

The F.D.I. is represented by an Executive Council which was elected by the votes of the general meeting of the Congress of the 14th August, 1900, after free discussion. This Executive Council, with its appointed officers and committee, has the following duties :

To carry into execution the laws of the Federation.

To fix the place and date of International meetings.

To call together the different International committees.

To carry out the realization of all resolutions passed by the F.D.I.

To examine propositions or resolutions submitted by the national committees, federations, or societies.

The committee met for the first time in Paris on the 15th August, 1900. During the current year, two preparatory meetings were held in Paris, one on the 28th November, 1900, the other on the 27th May, 1901.

It was at these meetings that it was decided that the Council should meet for the second time in London, from the

4th to the 7th August, during the annual meeting of the British Dental Association. This meeting in London is called for the purpose of drawing up the laws of the F.D.I., to appoint such International Committees as seems necessary, to discuss the conditions of future meetings, as well as to examine propositions made, as to the date and place of meeting of the next International Dental Congress.

Just as the Congress decided, at its meeting on the 15th of August, 1900, to appoint an Executive Council representing the F.D.I., it also resolved at the same general meeting that the Council should appoint an International Committee on Education, charged to draw up a schedule of the theoretical and practical knowledge which the dentist should possess.

The members of this Committee have accordingly been appointed by the Executive Council and will meet for the first time in London, at the same time as the Council. This Committee will appoint its own officers, will examine the conditions of dental studies, from an international point of view, as well as the proposal for the International Federation of Dental Schools.

When we say that the questions on the Agenda for the meeting, will be discussed by such men as Brophy, Harlan, and Kirk, only to mention those delegates coming from America, we have shown, as we think, the importance of the discussions that will be held at that meeting.

Moreover, besides these meetings there will be a general meeting of the Executive Council, of the Committee on Education, and of different delegates which will be held in the University of Cambridge under the presidency of its Vice-Chancellor, and which promises to be of remarkable interest.

Dr. Sauvez then follows with some remarks as to the welcome which is assured to visitors, but which our modesty forbids us to translate. He discusses also the visit of the French National Dental Federation, (another outcome of the Congress) to Ajaccio, where it will hold its first general meeting in connection with L'Association Francaise pour l'avancement des Sciences. This great Association was founded in 1864, and is analogous to the British Association for the Advancement of Science.

We compliment our French brethren on this important advance in professional development and progress.

The programme for the meetings and excursions in Corsica is extremely interesting, and we are certain that the

French dentists would warmly welcome any enterprising British dentist who could make that interesting island the scene of his annual holiday.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

The following Members have been elected as Officers and Councillors for the year 1901-2.

President—W. A. Maggs.

Vice-Presidents — (Resident) A. S. Underwood, F. J. Bennett, W. H. Woodruff. (Non-resident) G. Brunton (Leeds), W. S. Woodburn (Glasgow), W. B. Bacon (Tunbridge Wells).

Treasurer—C. F. Rilot.

Librarian—H. Baldwin.

Curator—J. F. Colyer.

Editor of Transactions—H. Lloyd Williams.

Honorary Secretaries—J. H. Mummery (Foreign), A. Hopewell Smith (Council), W. Rushton (Society).

Councillors—(Resident) J. H. Reinhardt, H. G. Read, G. Northcroft, R. Wynne Rouw, J. Mansbridge, M. F. Hopson, Morton A. Smale, R. D. Pedley, J. Percy Smith. (Non-resident), D. Corbett, Junr., Dublin; Rees Price, Glasgow; G. O. Whittaker, Manchester; T. Mansell, Birkenhead; W. A. Rhodes, Cambridge; W. Glaisby, York; J. J. H. Saunders, Barnstaple; E. A. Bogue, New York; J. F. L. Pike, Sheffield.

EMBEZZLEMENT BY A DENTIST'S ASSISTANT.

At the Manchester City Police Court, John Henry Darwell, an assistant to Macdonalds, Limited, dentists, Piccadilly, was charged with a series of embezzlements. It was part of the prisoner's duty to visit the firm's branch establishments,

and it was proved that both at Winsford and Southport he received accounts from his employers' customers, but failed to account for the money. In order to evade discovery he tore out the counterfoils from the receipt books, and, in one instance, where a lady had an appointment to call at the Winsford branch on a day when he would not be there, he wrote asking her not to call, explaining that there would be no one there. This was said to be a pure fabrication. Prisoner admitted misappropriating three specific sums of £3 10s., £3, and £2 respectively, and was sent to gaol for two months.

ROCHDALE GUARDIANS AND THEIR OUT- SPOKEN DENTIST.

At the meeting of the Rochdale Cottage Homes Committee, on July 8th, Mr. Isaac Renshaw, of Drake Street, was thanked for forwarding some mounted photographs to be placed in the children's bedrooms at the homes. Mr. Renshaw also forwarded a report of the professional work done by him as surgeon dentist to the children at the homes. After giving information as to his past duties, he stated that there was a great amount of work to be done if the mouths of children were to be put into a healthy condition and their teeth saved, and that some of the children would never be healthy and strong until this was done. Continuing, Mr. Renshaw said, "The cost of fitting up the dental surgery at the homes is not so great when you compare it with the advantages which will accrue to the children. The condition of the teeth of children is becoming a matter of national importance. I should like to say incidentally that a very large proportion of the recruits for the army and navy during the past eighteen months have been rejected as being unfit for service on account of their bad teeth, and that during the past month the War Office has appointed and sent out a number of dentists to South Africa to render service to our soldiers and sailors. I refer to these facts as a plea for the children of whom you are the guardians. You have already gone to some expense in fitting up the surgery with a den-

tist's chair and a dental engine, and I trust you will not go back on the good work which you have begun. It is immaterial to me whether you re-appoint me or not, but whether or no my interest in the work constrains me to hope that you will consider what is best for the children." No resolution was adopted after the reading of the report, and the minutes were passed without comment.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

NOTICE CONCERNING THE CARTWRIGHT PRIZE.

This Prize was founded by the "Association of Surgeons practising Dental Surgery" with the object of commemorating the services of Samuel Cartwright, F.R.C.S., in improving the status of the Dental Profession not only by inducing many of those engaged in its practice to become fully qualified Surgeons, but also by assisting to gain the recognition of Dentistry as a special branch of surgery by the institution of a Licence in Dental Surgery by the Royal College of Surgeons of England.

The "Association of Surgeons practising Dental Surgery" having been dissolved, the administration of the Fund for the endowment of the Prize has, under an order of the Charity Commissioners, been entrusted to the Royal College of Surgeons of England, and the Prize is now offered for competition under the following conditions:—

CARTWRIGHT PRIZE.

1. The Cartwright Prize will be awarded quinquennially, and the first award will be for the five years ending 31st December, 1905.
2. The Prize consists of a medal executed in bronze and an honorarium of £50.
3. The subject for the essays to be submitted in competition for the Prize is "The Surgical Diseases having their origin in abnormal or diseased conditions of the Teeth and

their structures, the essay to be illustrated by pathological and microscopical specimens."

4. Candidates for the Prize must be persons engaged in the study or practice of Dental Surgery and possessing qualifications capable of registration under the Medical Acts of the United Kingdom. (*A Diploma or Licence in Dental Surgery without a Medical or Surgical Diploma or Degree will not be a sufficient qualification.*)

5. The Prize will be awarded to the author of the best essay written in English upon the proposed subject, if such essay is considered of sufficient merit.

6. Every essay must have a motto or device and must be accompanied by a sealed paper containing the name and address of the author, and having on the outside a motto or device corresponding with the motto or device on the essay.

7. Each essay must be addressed to the Secretary of the Royal College of Surgeons of England, and delivered at the College not later than 4 o'clock p.m. on the 31st December, 1905.

8. The manuscript Prize essay and every accompanying drawing and preparation will become the property of the Royal College of Surgeons of England.

9. Every unapproved essay which is unclaimed at the expiration of twelve months from the date of its receipt will be returned, with any accompanying drawing and preparation, to the author thereof at the address given in the sealed envelope.

S. FORREST COWELL, Secretary.

20th June, 1901.

THE USE OF COCAINE.

An inquest was held at Cromer as to the death of Ellen Rose Dulley, wife of a chemist, of Church Street, Cromer, which took place on Monday evening after the administration of cocaine. From the evidence of the husband, David Dulley, it appeared that his wife suffered much from neuralgia on the day in question. She asked that Thomas Cox, an unqualified

assistant in the shop, might extract her teeth. Her husband acquiesced, and suggested an injection of cocaine. The first tooth gave no trouble, but Cox wished to examine the second before administering another injection. Mrs. Dulley would not allow it to be touched, however, until a further injection had been made. After the operation she went into convulsions. Medical aid was called in and remedies applied, but without avail. Thomas Cox, medical student, said he had no qualifications. He gave the injections on Mr. Dulley's suggestion, and used about one grain of cocaine in three injections. Medical evidence having been given, the jury returned a verdict that Mrs. Dulley died from an over-dose of cocaine, accidentally administered, and added the opinion that cocaine should only be given by qualified practitioners.

BRIGHTON BANKRUPTCY COURT.

Re Louis Prager.—The liabilities were scheduled at £377 12s. 10d. and the assets nil. In reply to the Official Receiver, debtor said he started business as a dentist in London. He had no capital then, but his partner in the business brought a small capital into it. The partnership only lasted about 12 months, and debtor then took over the liabilities, carrying on the practice also until about four years ago. Then he went to Liverpool, where he was employed as manager to the American Dental Company, and remained there about four years. At Liverpool he bought some furniture on credit, which cost about £599, and paid no cash down at the time. Eventually, he gave a bill of sale upon the furniture, and borrowed £350 from a money lender at the rate of 25 per cent. per annum. He sold the furniture for £400, and paid the money lender off entirely. He came to Brighton six months ago, acting as manager for the American Dental Company, his salary being £520 a year. Since his bankruptcy, the Directors had compelled him to resign, but he was still engaged as a monthly servant at the same salary. He spent the whole of his salary on living; he did not think he lived extravagantly. He had practically been insolvent since leaving Liverpool. He had not been speculating. The examination was closed.

THE CENTRAL LONDON SCHOOL DISTRICT.

At a recent meeting, the dentist submitted his annual report for the year ended June 30th. The number of stoppings, it was stated, was in excess of the number of extractions, and there could be little doubt that the condition of the mouths of the children was far more satisfactory than was formerly the case. Nitrous oxide gas was used for 63 patients where the operation seemed to call for its employment. The number of children inspected was 1,518; extractions, 502; stoppings, 510; scaling cases, 45; regulation cases, 29; and rhizodontropy, 1. The total number of operations was 1,087.

ACTION FOR UNSKILFUL DENTISTRY.

At the Sydney local court, Jessie Tank, a young woman, recovered £35 damages from a dentist, F. W. Turner, for unskillfully performing a dental operation. For the prosecution it was alleged that while attempting to extract a partly decayed tooth the dentist forced it in an upward direction into the antrum, from where it was removed by surgeons.

EDINBURGH DENTAL HOSPITAL AND SCHOOL.

The summer meeting of the directors of the Incorporated Edinburgh Dental Hospital and School was held in the school, 31, Chambers Street, when the prizes gained by the students were presented by Dr. Patrick Heron Watson. Dr. Guy, the Dean, presided over a large attendance, and in submitting the report of the directors, mentioned that the whole of the expense of the Hospital had been borne in the first place by the directors and members of the Incorporation,

and in the second place by the revenue which was derived from the fees of the students. They had not in that school any fat professorships. They devoted the money which the students paid for the privileges of the school to its upkeep; and more than that, they had not as yet been able to attract the attention of any distracted millionaires who were unable to throw their money out of the window. In the past year, he went on to say, the students had attended with greater regularity, and had done a greater amount of better work than ever before. The number of students on the roll was 48, of whom 24 had enrolled during the past year. Fifteen having completed the course, passed the final examination of the Royal College of Surgeons and received the L.D.S. diploma. Dr. Watson thereafter presented the prizes, and briefly addressed the students.

APPOINTMENT.

Mr. G. N. Smallwood, L.D.S., as an honorary assistant dental surgeon to the Birmingham Dental Hospital.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

The Journal will be supplied direct from the office on PREPAYMENT OF Subscription as under:

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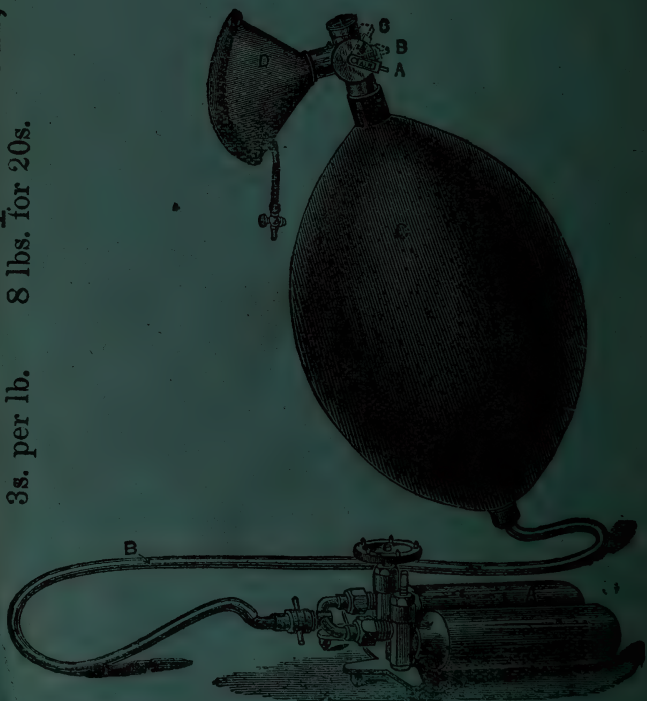
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THE

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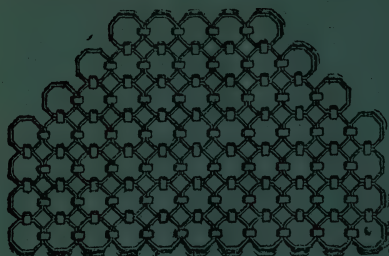
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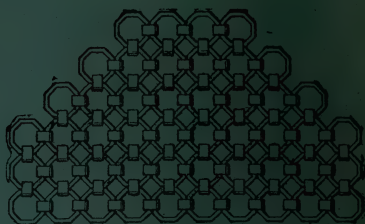
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This Journal is published TWICE A MONTH, on the 1st and 15th.

Advertisements should reach the office by the 10th and 25th.

N.B.—This Journal, having by far the largest circulation of any English Dental Periodical, is the best medium for all Advertisements, and its Edges being cut throughout, all the Advertiser-ents must be seen.

The Journal is supplied direct from the Office, to any part of the world, post free, for 14s. per annum, 7s. Six Months, 3s. 6d. per Quarter, payable in advance.

No Subscription can be discontinued before the end of any one year.

A month's notice should be given in writing by subscribers wishing to terminate their subscription before the end of the year. All subscribers not giving such notice will be considered subscribers for the following year.

Cheques, Post Office Orders, or Postal Orders should be crossed and made payable to the order of G. E. SKLIROS, 289 & 291, REGENT STREET, W.

NOTICE TO ADVERTISERS. Letters for advertisements appearing in our Journal are allowed to be addressed, free of charge, at our office, c/o us, for yearly Subscribers only. The Subscriber's name must always be given to us, in confidence. All advertisements must be prepaid to insure insertion.

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- By Experienced Operator and Mechanic. Registered. Shortly disengaged. Salary and commission. Management of branch. London suburbs preferred. "R.," c/o J. P. Segg, 289, Regent Street, W.
- As Assistant, Mechanical. Assist in surgery. First class vulcanite, good plate, good references. 35/-. "Metallurgist," 123, Duke Street, Southport.
- A qualified dental Surgeon, æt. 29, incapacitated from practising his profession owing to an injury to his left arm, offers his services as Secretary or Superintendent of a Practice, to a dentist in return for a small remuneration. "J.," 18, Paget Road, West Dulwich.
- Young Lady (23) desires re-engagement as clerk and lady attendant to dentist. 5 years' good reference. "B. S.," 19, Grove Green Road, Leytonstone, Essex.
- Mechanical Assistant. 5 years' experience. Highest references. Manchester or Liverpool. "R.," 19, Hardshaw Street, St. Helens.
- Manager (late) Eskell-Paget, 151, Strand, desires appointment as operator. Highest references. "Dentist," 29, Queen's Road, Lavender Hill.
- As Mechanic. Assist in surgery or manage small branch. Good references. "Dental," 142, Strone Road, Forest Gate, London.
- As Improver. Good reference, registered. London or suburbs. "C. T.," 30, Walton Well Road, Oxford.
- Dental Assistant seeks situation. Good references. 6 years' in first-class practice. Write to "Dental," c/o Messrs. Segg & Co., 289, Regent Street, W.
- By good Operator. London district or south coast preferred. "X.," c/o Segg & Co., 289 & 291, Regent Street, W.
- As Surgical and Mechanical or manage. Registered. "Rex," 7, Effingham Street, Pimlico.
- Young Lady requires re-engagement as Secretary and Assistant to dentist. Experienced. Good reference. "W.," Shobnall Street, Burton-on-Trent.
- Doctor highly recommends Lady nurse. Secretary. Good experience London and elsewhere. Dental surgeries preferred. Address c/o Rouse, Chemist, Cavendish Square, W.
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IMPROVER Wanted. Address, stating capabilities, references, and salary required, "M.," c/o Messrs. Segg & Co., 289, Regent Street, W.

WANTED for India, a good all-round man, D.D.S. or L.D.S. preferred. State salary and commission expected with copies of testimonials and photo, to Dr. B., c/o Messrs. Plucknett & Co., 29, Poland Street, London, W.

WANTED Operating Assistant, with view to Partnership.
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QUALIFIED Assistant wanted to manage Branch Prac-
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"A. L. H.," c/o Segg & Co., 289, Regent Street, W.

WANTED good Operator and Mechanic, able to take
charge of branch practices at times. Must have good references.
Permanency to good all-round man. Salary £2 and commission. Apply to
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stating age, experience and salary required to "W.," c/o Segg & Co.,
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cash takings £667. 6 months this year £315. Offers wanted. Owner
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LONDON COUNTY COUNCIL. Technical Education Board Evening Classes in Mechanical Dentistry. The Technical Education Board proposes to re-open on Monday, October 7th, the classes which were conducted last Session at the Institute of Dental Technology and Mechanical Dentistry, 4, Langham Chambers, Langham Street, W. These classes are restricted to dental mechanicians, improvers and apprentices. The fees charged are 15s. a term of about three months, in the case of mechanicians in receipt of £2 a week or more, and 10/- in the case of improvers. Apprentices will be admitted free on giving proof of their trade status. Application for admission should be made on special forms to be obtained at 4, Langham Chambers, or at any dental depot. William GARNETT, Secretary of the Board, 116, St. Martin's Lane, W.C. September 11th, 1901.

THE NATIONAL DENTAL HOSPITAL, Great Portland Street, W. President—H.R.H. THE DUKE OF CORNWALL and YORK, K.G. Vacancy for HOUSE SURGEON from October 1st, 1901. Salary at rate of £100 per annum. Candidates must be L.D.S., and must forward application with testimonials before September 24th. Full particulars from M. P. Collings, Secretary.

Charing Cross Hospital Medical School.

The WINTER SESSION, 1901-2, will commence on Wednesday, October 2nd, when an Introductory Address will be delivered at 4 p.m., by JOHN W. TAYLOR, F.R.C.S. Professor of Gynæcology in the University of Birmingham, a former Student of the School.

The Livingstone Scholarship, (100 guineas,) The Huxley Scholarship, (55 guineas,) and six other Entrance Scholarships, total value £550, are awarded annually.

Two Scholarships of the value of 60 guineas each are reserved for Students of Oxford, Cambridge, or London Universities.

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The composition fee for Dental Students is 54 guineas, or 60 guineas payable in two instalments of 30 guineas each.

A proportionate reduction of the above Fees is made to Students who have completed part of the curriculum elsewhere.

CHARING CROSS HOSPITAL is within three minutes' walk of the Dental Hospital of London, and the hours of lectures are arranged to suit the convenience of both General and Dental Students.

The Hospital and School are situated within two minutes of both Charing Cross Stations, and the Athletic Ground at Eltham can be reached within half an hour from Charing Cross.

THE SCHOOL PROSPECTUS, containing full information concerning the classes, prizes, and all other arrangements connected with the Medical School will be sent on application to the DEAN, Chandos Street, Strand, W.C.

HERBERT F. WATERHOUSE, Dean.

The London Hospital Medical College.

The WINTER SESSION commences on October 1st.

The Annual Dinner will be held in the College Library on Tuesday, October 1st, Dr. Daly in the chair.

The Hospital is the largest in the Kingdom; nearly 800 beds are in constant use, and no beds are closed. The only general hospital for East London. In-patients last year 12,746; out-patients, 161,762; accidents, 19,944; major operations, 2,526.

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Scholarships and Prizes.—Thirty-four Scholarships and Prizes are given annually. Seven entrance Scholarships will be offered in September.

Special Classes are held for the University of London and other higher Examinations. Special entries for Medical and Surgical Practice can be made. Qualified Practitioners will find excellent opportunities for studying the rarest diseases.

A reduction of 15 guineas is made to the sons of members of the profession.

Enlargement of the College.—The New laboratories and class rooms for bacteriology, public health, operative surgery, chemistry, biology, &c., and the new Clubs Union Rooms are now in full use.

The Clubs Union Athletic Ground is within easy reach of the hospital. Luncheons and dinners at moderate charges can be obtained at the Students' Club.

The Metropolitan, Central, and other railways have stations close to the Hospital and College.

For prospectus and information as to residence, &c., apply personally or by letter to

MUNRO SCOTT, Warden.

Mile End, E.

THE
DENTAL HOSPITAL OF LONDON MEDICAL SCHOOL
 LEICESTER SQUARE.

The WINTER SESSION, 1901-2, will commence on Tuesday, Oct. 1st.

DENTAL HOSPITAL.

Consulting Physician—SIR RICHARD DOUGLAS POWELL, Bart., M.D.

Consulting Surgeon—MR. CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeons—

Mr. T. ARNOLD ROGERS, M.R.C.S., L.D.S.

Mr. J. SMITH TURNER, M.R.C.S., L.D.S.

Dental Surgeons.—Leonard Matheson, L.D.S., E. Lloyd Williams, L.R.C.P., M.R.C.S., L.D.S., L.S.A., W. B. Paterson, F.R.C.S., L.D.S., W. H. Woodruff, L.D.S., J. F. Colyer, L.R.C.P., M.R.C.S., L.D.S., C. F. Rilot, L.R.C.P., M.R.C.S., L.D.S.

Assistant Dental Surgeons.—H. Lloyd Williams, M.R.C.S., L.D.S., W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S., G. Hern, L.R.C.P., M.R.C.S., L.D.S., J. G. Turner, L.R.C.P., F.R.C.S., L.D.S., W. R. Barrett, L.R.C.P., M.R.C.S., L.D.S., N. G. Bennett, M.A., M.B., B.C., Cantab., L.R.C.P., M.R.C.S., L.D.S., Douglas Gabell, L.R.C.P., M.R.C.S., L.D.S., W. J. May, L.R.C.P., M.R.C.S., L.D.S., A. Howewell Smith, L.R.C.P., M.R.C.S., L.D.S., W. S. Newell, M.A. Oxon., L.R.C.P., M.R.C.S., L.D.S., H. Austen, M.B. Lond., L.R.C.P., M.R.C.S., L.D.S.

Medical Tutor—J. Warburton Brown, L.R.C.P., M.R.C.S., L.D.S.

Curator of Mechanical Laboratory—W. J. CAVE

MEDICAL SCHOOL.

Dental Anatomy and Physiology (Human and Comparative)—CHARLES S. TOMES, F.R.S., M.A. Oxon. F.R.C.S., L.D.S., on Tuesdays and Thursdays, at 5.30 p.m. (Summer.) (Demonstrator—A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S.)

Dental Surgery and Pathology—WILLIAM HERN, M.R.C.S., L.D.S., on Tuesdays and Fridays at 5.30 p.m. (Summer.)

Mechanical Dentistry—E. LLOYD-WILLIAMS, L.R.C.P., M.R.C.S., L.D.S., L.S.A., on Wednesdays at 5.30 p.m. (Winter.) (Demonstrator—MR. W. F. FLOTE.

Metallurgy in its application to Dental Purposes—DR. FORSTER MORLEY, M.A., F.I.C., F.C.S., on Thursdays, at 5.30 p.m. (Winter.) (Demonstrator—PERCY RICHARDS, F.I.C., F.C.S.)

The new Hospital and School are now open.

Students are received for the full Dental portion of the Curriculum including the three year or any shorter period of teaching in Dental Mechanics.

The Surgical portion of the Curriculum can be received at any General Hospital.

During the Sessions, the Surgeons of the day will give demonstrations at stated hours

The House Surgeons attend daily while the Hospital is open.

The Saunders Scholarship, of £20 per annum, and prizes are open for competition.

The Walker Scholarship, of £20 per annum. This is an Entrance Scholarship, Examinations for which will take place as follows:—Chemistry and Physics, Wednesday, Sept. 25th, 4 to 7; Dental Mechanics (Paper), Thursday, Sept. 26th, 4 to 7; Practical, Friday, Sept. 27th, 9 to 1.

Fee for two years' Hospital Practice required by the Curriculum, including Lectures, £50 in one payment, or 50 guineas in two yearly instalments. The Curriculum requires two years to be passed at a General Hospital. The fee for this is about £55. *Both Hospitals can be attended simultaneously.*

The Fee for three years' tuition in Mechanical Dentistry is 150 guineas.

The Calendar and further particulars will be sent on application to

MORTON SMALE. Dean.

INCORPORATED
DENTAL HOSPITAL OF IRELAND.
 LINCOLN PLACE, DUBLIN.

THE WINTER SESSION will commence **MONDAY,**
 OCTOBER 7th.

For particulars of fees, &c, apply to

A. W. W. BAKER, M.D.,

Acting Dean.

National Dental Hospital and College.

GREAT PORTLAND STREET, W.

President--**H.R.H. THE DUKE OF CORNWALL & YORK, K.G.**

HOSPITAL STAFF.

Consulting Physician.

Sir W. H. BROAIBENT, Bart, M.D., F.R.C.P.

Consulting Surgeon.

CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeon—S. J. HUTCHINSON, M.R.C.S., L.D.S. Eng.

Visiting Physician—JAMES MAUGHAN, M.D.

Visiting Surgeon—E. W. ROUGHTON, F.R.C.S., etc.

Dental Surgeons.

Monday—F. HENRI WEISS, L.D.S. Eng.; Tuesday—ALFRED SMITH, L.D.S. Eng.; Wednesday—MARCUS DAVIS, L.D.S. Eng.; Thursday—T. G. READ, L.D.S. Eng. D.M.D.; Friday—W. RUSHTON, L.D.S. Eng.; Saturday—C. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.

Assistant Dental Surgeons.

Monday—WILLOUGHBY WEISS, L.D.S. Eng.; Tuesday—EDGAR BEVERLEY, L.D.S. Eng.; Wednesday—S. F. ROSE, M.R.C.S., L.R.C.P., L.D.S. Eng.; Thursday—A. E. RELPH, L.R.C.P., M.R.C.S., L.D.S. Eng.; Friday—J. SIM WALLACE, M.D., D.Sc., L.D.S. Eng.

Saturday—H. J. RELPH, L.R.C.P., M.R.C.S., L.D.S. Eng.

Anæsthetists.

Monday—H. P. NORLE, M.R.C.S.; Tuesday—F. C. COLLINGWOOD, L.R.C.P. Lond., M.R.C.S. Wednesday—C. J. OGLE, M.R.C.S., L.S.A.; Thursday—G. EVERITT NORTON, M.R.C.S., L.S.A.; Friday—JAMES MAUGHAN, M.D.; Saturday—C. E. A. MACLEOD, F.R.C.S.

Demonstrator—STANLEY COLYER, M.R.C.S., L.R.C.P., L.D.S. Eng.

House Surgeons.

H. H. GUDGEON, L.D.S. Eng.; G. F. PRICKETT, L.D.S. Eng.

LECTURERS.

Dental Anatomy and Physiology—J. W. PARE, M.D. Edin., L.D.S. Eng.

Dental Surgery and Pathology—H. J. RELPH, M.R.C.S., L.R.C.P., L.D.S. Eng.

Dental Mechanics—HARRY ROSE, L.D.S. Eng.

Dental Metallurgy—HUGH CANDY, B.A., B.Sc. Lond., F.I.C.

Dental Materia Medica—C. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.

Practical Courses are also held as required by the R.C.S. curriculum.

The WINTER SESSION, 1901-1902, will commence on Tuesday, Oct. 1st.

The accommodation and fittings are in accordance with the latest requirements for efficient teaching in all branches of the Science and Art of Dental Surgery.

The Conservation Room, with space for sixty chairs, is well lighted and warmed and ventilated after approved methods.

Other large rooms are arranged as a Mechanical Laboratory, Special Demonstration Room, Students' Common Room, &c.

There are also a Metallurgical Laboratory, Library and Museum. The Waiting Rooms, Extraction Rooms, and Lecture Hall are on the ground floor.

The Building is lighted throughout by electricity, and there is also a current for motors in the Stopping Room.

Each Student on entering the School passes through a preliminary course under the care of a Demonstrator, and all the members of the Staff give special Demonstrations and take part in chair-side teaching. The Medical Tutors assist Students before each examination of the R.C.S.

The new Calendar, containing full information as to Lectures, Fees, Prizes, and an Entrance Exhibition, may be had on application to the Dean, who attends the Hospital on Tuesday mornings.

SIDNEY SPOKES, *Dean.*

Guy's Hospital Dental School,

The WINTER SESSION will begin on Oct. 1, and end on March 31.

THE STAFF OF THE DENTAL SCHOOL.

Dental Surgeons.

F. NEWLAND-PEDLEY, F.R.C.S., L.D.S. Eng.
W. A. MAGGS, L.R.C.P., M.R.C.S., | J. H. BADCOCK, L.R.C.P. M.R.C.S.,
L.D.S.Eng. | L.D.S.Eng.

Assistant Dental Surgeons.

R. WYNNE ROUW, L.R.C.P., | M. F. HOPSON, L.D.S.Eng.
M.R.C.S., L.D.S.Eng. | J. B. PARFITT, L.R.C.P., M.R.C.S.,
H. L. PILLIN, L.D.S.Eng. | L.D.S. Eng.

Demonstrators in Practical Dentistry.

J. LEWIN PAYNE, L.R.C.P., | E.B. DOWSETT, L.R.C.P., M.R.C.S.,
M.R.C.S., L.D.S. Eng. | L.D.S. Eng.
C. S. MORRIS, L.D.S.Eng. | P. S. CAMPKIN, L.D.S. Eng.

F. J. PEARCE, L.D.S. Eng.

Anæsthetists.

F. W. COCK, M.D., M.S. | C. J. OGLE, M.R.C.S., L.S.A.
H. F. LANCASTER, M.D. | W. S. HANDLEY, M.D., F.R.C.S.
R. P. ROWLANDS, F.R.C.S.
R. H. J. SWAN, M.B., B.S.

LECTURES AND DEMONSTRATIONS.

WINTER SESSION.

Dental Surgery—Mr. NEWLAND-PEDLEY.

Dental Anatomy and Physiology—Mr. MAGGS.

Metallurgy—Mr. WADE, B.Sc.

Practical Dental Metallurgy—Mr. HOPSON.

SUMMER SESSION.

Operative Dental Surgery—Mr. BADCOCK.

Dental Mechanics—Mr. WYNNE ROUW.

Dental Microscopy—Dr. BEDDARD & Dr. SPRIGGS.

Demonstrator of Dental Mechanics—Mr. PILLIN.

An Open Entrance Scholarship in of the **Dental Mechanics**, value of £30, is offered for competition annually in the month of September. Students entering during the summer session are eligible to compete. All particulars relating to the examination may be obtained upon application to the Dean.

Three Prizes, of the aggregate value of £35, are awarded annually.

A Travelling Scholarship of the value of £100 will be offered in June, 1902.

Appointments.—The following appointments are allotted to Dental Students according to merit: Two Dental House-Surgeons, two Assistant Dental House-Surgeons, several Assistant Demonstrators of Dental Microscopy, and six Demonstrators in the Conservation Room.

The connection of this School with Guy's Hospital Medical School enables candidates for the L.D.S. Eng., to obtain at one institution the entire curriculum required by the Examining Board, an advantage which cannot be obtained elsewhere in London.

The Middlesex Hospital Medical School.

The WINTER SESSION 1901-02 will open on Tuesday, October 1st, at 3 p.m. T. H. KELLOCK Esq., M.A., M.D., F.R.C.S.; will give an Introductory Address, after which the Prizes gained during the previous year, will be distributed by the LORD HOWARD DE WALDEN.

The ANNUAL DINNER of the Past and Present Students and their friends will take place the same evening at the Trocadero, at 7 o'clock, Mr. J. BLAND-SUTTON, F.R.C.S., in the chair.

HOSPITAL STAFF AND LECTURERS.

Consulting Physicians—Dr. S. Coupland, Sir R. Douglas Powell, (Bart. M.D.

Physicians—Dr. Cayley, Dr. J. K. Fowler, Dr. W. Pasteur.

Assistant Physicians—Dr. W. E. Wynter, Dr. A. F. Voelcker, Dr. F. J. Wethered, Dr. H. C. Thomson.

Obstetric Physician—Dr. W. Duncan.

Assistant Obstetric Physician—Dr. R. Boxall.

Consulting Physician to the Skin Department—Dr. Robert Liveing.

Physician to the Skin Department—Dr. J. J. Pringle.

Consulting Surgeons—Mr. Nunn, Mr. George Lawson.

Surgeons—Mr. Henry Morris, Mr. Andrew Clarke, Mr. A. Pearce Gould.

Assistant Surgeons—Mr. J. Bland Sutton, Mr. John Murray, and Mr. T. H. Kellock.

Ophthalmic Surgeon—Mr. William Lang.

Aural Surgeon—Mr. Stephen Paget.

Consulting Dental Surgeon—Mr. J. S. Turner.

Dental Surgeon—Mr. W. Hern.

Assistant Dental Surgeon—Mr. W. S. Nowell.

Other Lecturers—Dr. P. Thompson, Dr. Young, Dr. Kellas, Dr. W. J. Mickle, Dr. Crombie, Mr. A. G. R. Foulerton.

The Hospital contains 340 beds. There are Special Departments for Cancer, Syphilis, Diseases of Women and Children, Diseases of the Eye, Skin, Throat and Ear, and for cases requiring Electrical treatment.

There are eighteen Resident Clinical Appointments open to Students of the Hospital annually.

Two open Entrance Scholarships, value £100 and £60, will be competed for on September 24th, 25th and 26th, and one Entrance Scholarship (value £60) in Anatomy and Physiology open to Oxford and Cambridge Students only, on September 24th and 25th. Notice in writing to be sent to the Dean on or before September 16th.

Composition Fee 135 guineas, or by three yearly instalments 60 guineas, 50 guineas, and 35 guineas.

Special terms are made in favour of University and other Students who have already commenced their medical studies, and of University of London Students who have passed the Preliminary Scientific Examination.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the examinations in Medicine and Surgery in the United Kingdom, and for the diplomas in Public Health; and ample laboratory and class room accommodation is provided for the teaching of the various subjects of the Curriculum, and for original research in Medicine, Pathology, or Bacteriology.

The Residential College adjoining the Hospital provides accommodation for thirty students.

For further information apply to

W. PASTEUR, M.D., Dean.

UNIVERSITY OF BIRMINGHAM.

(1901-2.)

DEGREES IN DENTAL SURGERY.

The Degrees of Bachelor of Dental Surgery and Master of Dental Surgery are open to Students who follow the requisite Course in the University and have previously obtained a Diploma in Dental Surgery of one of the Licensing Bodies.

WINTER SESSION will commence on October 1st, 1901.

The SUMMER SESSION commences April 15th, 1902.

STAFF OF THE DENTAL DEPARTMENT.

Anatomy	...	...	...	Professor B. C. A. WINDLE, M.D., F.R.S. (Dean of the Faculty of Medicine.)
Physiology	...	...	...	Professor E. WACE CARLIER, M.D.
Chemistry	...	...	Professor PERCY F. FRANKLAND, Ph.D., B.Sc., F.R.S.	
Comparative Anatomy	...	...	...	Professor T. W. BRIDGE, D.Sc.
Physics	...	...	...	Professor J. H. POYNTING, D.Sc., F.R.S.
Pathology and Bacteriology	...	...	...	Professor R. F. C. LEITH, M.B., F.R.C.P.
Medicine	...	...	{	Professor R. SAUNDBY, M.D., F.R.C.P., LL.D. Professor A. H. CARTER, M.D., F.R.C.P.
Surgery	...	...	{	Professor BENNETT MAY, M.B., F.R.C.S. Professor GILBERT BARLING, M.B., F.R.C.S.
Dental Anatomy	...	...	...	J. HUMPHREYS, M.D.S., F.L.S.
Dental Surgery	...	...	...	F.E. HUXLEY, M.R.C.S., M.D.S.Ed.
Dental Mechanics	...	...	...	A. E. DONAGAN, M.A., L.D.S.
Dental Metallurgy	...	...	...	G. MELLAND, B.Sc., F.I.C.
Surgical Diseases of the Mouth	...	...	...	F. MARSH, F.R.C.S.
Medical Diseases of the Mouth	...	...	...	T. STACEY WILSON, M.D., M.R.C.P.
Dental Histology and Patho-Histology	...	...	...	DENCER WHITTLES, B.D.S.Eng.
Practical Dental Surgery	...	...	...	W. T. MADIN, L.D.S.Eng.

The Dental Department forms an integral part of the Faculty of Medicine of the University of Birmingham, and with the General, Queen's and Dental Hospitals, affords the fullest opportunities for study to Students preparing for the Dental Degrees of the University, and the Diplomas of Licensing Bodies.

An Entrance Scholarship of the value of £37 10s. 0d. is offered annually.

For Prospectuses and further information application should be made to J. HUMPHREYS, M.D.S., F.L.S., (Hon. Sec. of the Department,) or to GEO. H. MORLEY, Secretary of the University.

Birmingham Dental School, and Dental Hospital, 71, Newhall Street.

HOSPITAL STAFF.

Hon. Consulting Physician—Robert M. Simon, M.D.

Hon Consulting Surgeons—John St. S. Wilders, M.R.C.S.,
Jordon Lloyd, F.R.C.S.

Hon. Consulting Dental Surgeon—Charles Sims, L.D.S.

Hon. Dental Surgeons—H. Breward Neale, L.D.S., Frank E. Huxley, M.R.C.S., L.D.S., F. W. Richards, L.D.S., F. Hampton Goffe, L.D.S., A. E. Donagan, M.A., L.D.S., F. R. Howard, L.D.S., James Mountford, L.D.S.

Hon. Assistant Dental Surgeons—W. T. Madin, L.D.S., J. E. Parrott, L.D.S., P. T. Naden, L.D.S., A. T. Holder, L.D.S., W. M. Knott, L.D.S. G. F. C. Matthews, L.D.S., G. V. Smallwood, L.D.S.

Hon. Anaesthetists—F. W. Haynes, M.D., J. H. Blakeney, M.R.C.S., T. S. Short, M.D., M.R.C.P., C. St. Johnston, M.R.C.S., W. J. McCardie, B.A., M.B., B.C., W. D. Laurie, M.D., F.R.C.S. Edin., J. Rust, M.D., C.M., J. T. Hewitson, M.D., C.M., A. Avent, F.R.C.S., M.B.

Demonstrators—K. Daman, L.D.S., A. H. Parrott, L.D.S.

House Surgeon—R. W. Griffin, L.D.S.

Mechanical Instructor—Mr. G. Cole.

The Dental Hospital was founded in 1858, and the Dental School was formed in conjunction with the Queen's College in 1880.

All the lectures are given at the University.

The Dental Hospital affords every advantage for Students about to enter the profession to acquire a thorough practical knowledge as required by the Examining Board of the Royal College of Surgeons. It has an annual attendance of over 12,000 patients, and the operations performed exceed 27,000 per annum. The system of teaching is such that each student is required to learn and to satisfactorily perform operations in the various methods of filling, to carry through several typical cases of regulation, to make and insert in the mouth several cases of bridge work, and different styles of crowning, and to fill the position of dresser in the Extracting and Anaesthetic Rooms. The Hospital is open for practice every morning at 9 a.m., when the Students are assisted and instructed in their work by the officers of the morning, viz., the Hon. Dental Surgeon, the Hon. Assistant Dental Surgeon, the Demonstrator, and the House Surgeon.

Preliminary instruction is given to new Students during the first four months by the Demonstrators. This course of instruction includes diagnosis, extractions, the study of the teeth, the dental tissues, the dental pulp, and the treatment of their pathological conditions, the preparation and filling of teeth, in artificial maxillæ and in the mouth, and the making of the various kinds of crowns.

The Members of the Staff demonstrate methods of practice in which they are specially skilful, and special demonstrations are given to advanced students.

The Mechanical Laboratory is under the control and superintendence of two honorary officers and a skilled mechanic. Each Student is required to take models of the jaws, make and fit in various typical examples of dentures, thus enabling them to meet the requirements of the Mechanical examination of the Royal College of Surgeons.

Examinations are held annually, prizes and certificates are awarded where sufficient merit is shown, in the following subjects:—Best preliminary work; Advanced Operative Work, Best series of Regulation Cases, Mechanical Work, Anaesthetics—The Greene Memorial Medal; Essay on a given subject—C. Ash & Sons' prize.

FEES.—For Two Years Hospital Practice the fee is Twenty Guineas, which must be paid in advance.

The Winter Session will commence on Tuesday, October 1st, 1901.

The Prospectus will be sent on application to—

F. W. RICHARDS, Dean.

University College, Liverpool

SCHOOL OF DENTAL SURGERY.

The WINTER SESSION commences on OCTOBER 1st.

LECTURES IN THE SCHOOL.

- Anatomy*—Professor A. M. PATERSON, M.D.
Physiology—Professor C. S. SHERRINGTON M.A., M.D., F.R.S.
Dental Anatomy and Physiology—Professor E. T. PAUL, F.R.C.S.
Dental Histology—Professor C. SHERRINGTON, M.A., M.D., F.R.S.
Dental Surgery—E. J. M. PHILLIPS, M.R.C.S., L.R.C.P., L.D.S.
Dental Mechanics—E. A. COUNCELL, L.D.S. Eng.
Dental Metallurgy—T. L. BAILEY, Ph.D.
Chemistry—Professor J. CAMPBELL BROWN, D.Sc., F.I.C.
Materia Medica—Professor W. CARTER, M.D., LL.B., F.R.C.P.
Surgery—Professor RUSHTON PARKER, M.B., B.S., F.R.C.S.
Clinical Surgery—Professors SIR W. MITCHELL BANKS, M.D., F.R.C.S.,
 RUSHTON PARKER, M.B., B.S., F.R.C.S., F. T. PAUL, F.R.C.S.
Pathology—Professor R. W. BOYCE, M.B.
Medicine—Professor T. R. GLYNN, M.D., F.C.R.P.

HOSPITAL STAFF.

- Consulting Physician*—T. R. GLYNN, M.D., F.R.C.P.
Consulting Surgeon—FRANK T. PAUL, F.R.C.S.
Consulting Dental Surgeons—C. ALDER, L.D.S., H. C. QUINBY, L.D.S.,
 W. H. WAITE, D.D.S.
Honorary Dental Surgeons—R. EDWARDS, M.R.C.S., L.D.S. Eng.
 W. H. GILMOUR, L.D.S. Eng., J. W. LLOYD, M.R.C.S., L.R.C.P., L.D.S. Eng.,
 E. H. MOUNTFORD, L.D.S. Eng., J. P. ROBERTS, L.D.S. Edin.,
 J. TINDALL, L.D.S., LEWIS OSBORN, L.D.S. Eng.
Assistant Honorary Dental Surgeons—J. A. WOODS, L.D.S. Eng.,
 A. DRAKE, L.D.S. Eng., J. W. SKAE, L.D.S. Eng., J. W. TOMLINSON,
 L.D.S. Eng. H. W. P. BENNETTE, L.D.S. Eng.
Demonstrator of Operative Dental Surgery—F. J. BLIGHT, L.D.S. Eng.
Honorary Anaesthetists—F. W. BAILEY, M.R.C.S., L.R.C.P.
 F. MARSHALL, M.B., M.Ch. Vict., M.R.C.S., L.R.C.P. Lond.
House Surgeon—T. W. WIDDOWSON, L.D.S. Eng.
Assistant House Surgeons—B. FRANK, E. C. WOODS.
Curator of Laboratory—H. S. CHANNING.
Warden—W. H. GILMOUR, L.D.S. Eng.

The Liverpool Dental Hospital, Mount Pleasant, founded in the year 1864, is conveniently situated within five minutes' walk of University College, with which the Dental School is now affiliated.

Every facility is afforded to Students who are anxious to acquire proficiency in Dental Surgery. Over 22,000 patients were treated during last year.

At the Hospital an additional Operating Room was constructed five years ago, capable of holding fifty operating chairs. Particular attention has been paid to the ventilation and lighting of this room, which is acknowledged to be one of the finest in the Kingdom.

A new Mechanical Laboratory has been recently built and placed in charge of a skilled mechanic, under the supervision of the Warden of the Hospital. It is well-lighted by electricity, and is completely equipped with not only the ordinary fittings of a dental workshop, but all useful modern accessories as well.

Comfortable lodgings, at moderate cost, can be obtained near the Hospital and College.

Scholarships and Prizes of the value of £60 are awarded annually.

Fees.—Two years' Dental Hospital £21; 6 months £7 7s.; 3 months £4 4s.; Two Winters Royal Infirmary £10 10s. Composition payment at the College, £50 in two instalments; Apprenticeship premium £105.

A Prospectus will be forwarded on application.

A. M. PATERSON, M.D., Dean.

THE OWENS COLLEGE.

MANCHESTER.

DENTAL DEPARTMENT.

Principal—ALFRED HOPKINSON, K.C., M.A., B.C.L.

Dean—Professor ALFRED H. YOUNG, M.B., F.R.C.S.

PROFESSORS AND LECTURERS.

Anatomy, Descriptive and Practical	}	Professor ALFRED H. YOUNG, M.B., F.R.C.S.
Physiology	...	Brackenbury Professor WM. STIRLING, M.D., D.Sc.
Chemistry	...	Professor HAROLD B. DIXON, M.A., F.R.S.
Organic Chemistry	...	Professor W. H. PERKIN, Ph.D. F.R.S.
Medicine	...	Professor J. DRESCHFELD, M.D., F.R.C.P.
Surgery	...	Professor G. A. WRIGHT, B.A., M.B., F.R.C.S.
Clinical Surgery		Professor F. A. SOUTHAM, M.A., M.B., F.R.C.S.
Dental Surgery	...	G. G. CAMPION, L.D.S.
Practical & Operative Dental Surgery	...	G. O. WHITTAKER, L.D.S.
Dental Anatomy and Physiology		C. H. PRESTON, M.D., F.R.C.S., L.D.S.
Dental Mechanics	...	THOMAS TANNER, L.D.S.
Dental Metallurgy	...	J. P. HEADRIDGE, B.Sc., L.D.S., D.D.S.
Dental Histology	...	DAVID HEADRIDGE, L.D.S.

The Dental Department forms an integral part of the Department of Medicine, and with the Manchester Royal Infirmary and the Victoria Dental Hospital affords the fullest opportunities for study to Students preparing for any of the Dental Examinations.

Prizes.—Prizes or Medals and Certificates are awarded in all the classes on the results of the several examinations.

Special Prizes are also awarded at the Victoria Dental Hospital.

The Winter Session commences on October 1st.

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The Diseases of Children's Teeth:

Their Prevention and Treatment. By R. DENISON PEDLEY, M.R.C.S.,
L.D.S. Eng., F.R.C.S. Ed. With Numerous Illustrations. Cloth, 7/6.

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merit, and fully abreast of the latest scientific developments in its field.
It may be cordially recommended.—*The Dental Cosmos*.

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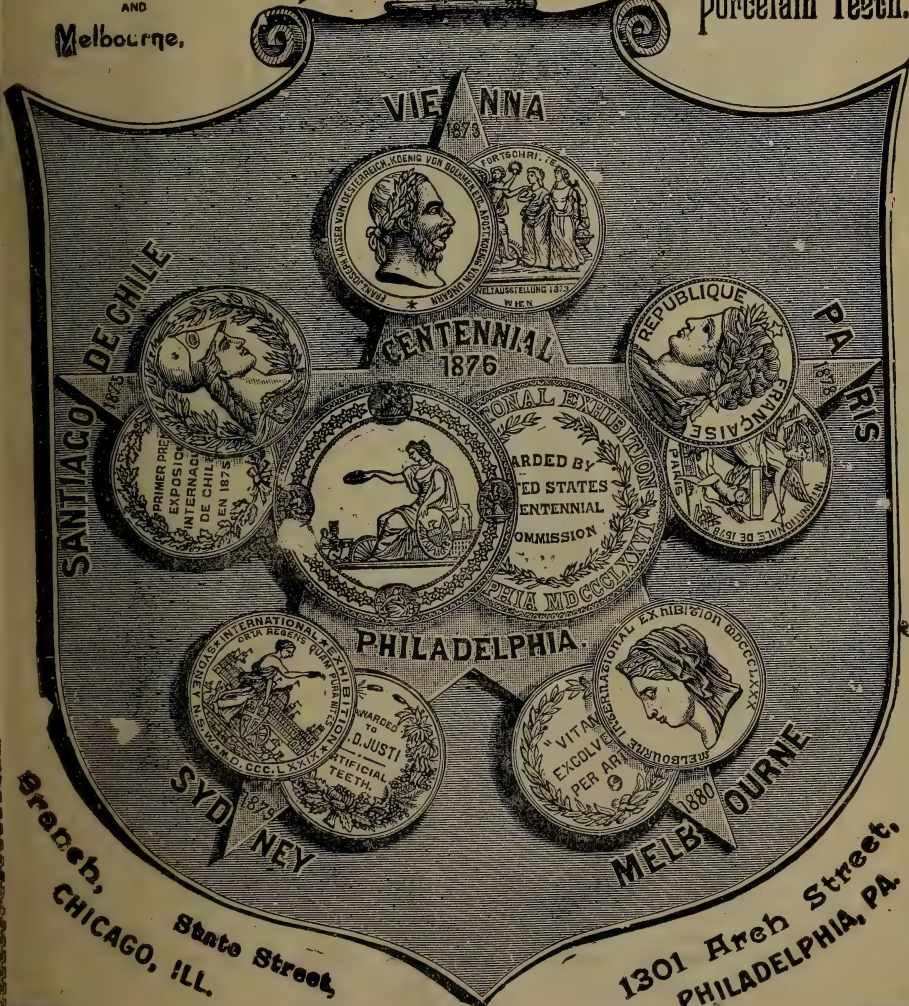
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British Journal of Dental Science

No. 801. LONDON. SEPTEMBER 15, 1901. VOL. XLIV.

THE MOVEMENTS OF THE MANDIBLE.

By T. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng.

(Continued from page 776.)

The following is the description given in Quain's Anatomy of the movements of the mandible.

"The Jaw is capable of movements of elevation and depression, and of protrusion and retraction; but it is to be observed that when the jaw is depressed, as in opening the mouth, the condyle advances from the glenoid cavity so as to be placed on the articular eminence in front of it. The movements which take place in the superior and inferior compartments of the joint are of different kinds. In the upper the fibro-cartilage glides forwards and backwards on the temporal bone, in the lower compartment the condyle rotates on a transverse axis against the fibro-cartilage. In opening the mouth the two movements are combined; the jaw and fibro-cartilage together move forwards and rest on the convex root of the zygoma, while at the same time the condyle revolves on the fibro-cartilage. When the lower incisors are protruded beyond those of the upper jaw, the movement is confined chiefly to the upper articulation; and

when the same movement is alternately performed in the joints of opposite sides, a horizontal, oblique or grinding motion is produced. The fibres of the external lateral ligament remain tight in opening the mouth, owing to the descent of the condyle, when it passes forwards on to the articular eminence." It is obvious that this is a much more accurate description of what appears to take place in the temporo-mandibular articulation during the movements of elevation and depression than that which appears in 'Tomes' Dental Anatomy. It would seem to imply, however, that there is a hinge movement between the condyle and the inter-articular cartilage, and a sliding movement between the cartilage and the base of the skull, at least this is the view of it that Mr. Tomes now adopts.*

It is therefore necessary to enter fully into the reasons for its rejection by the present writer. Before doing so, it may be as well to recall to the mind of the reader the chief anatomical features of the articulation.

The following terse description by John Hunter of the parts immediately concerned in the articulation of the lower jaw has not been surpassed by any recent writer. "Just under the beginning of this zygomatic process of each temporal bone, before the external Meatus Auditorius, an oblong cavity may be observed, in direction, length and breadth, in some measure corresponding with the condyle of the lower jaw. Before, and adjoining to this cavity there is an oblong eminence, placed in the same direction, convex upon the top, in a direction of its shorter axis, which runs from behind forwards; and a concave in the direction of its longer axis, which runs from within outwards. It is a little broader at its outer extremity, as the outer corresponding end of the condyle describes a larger circle in its motion than

* Some Observations on the Motions of the Mandible, *Transactions of the Odontological Society*, vol. 33, No. 6.

the inner. The surface of the cavity, and eminence, is covered with one continued, smooth cartilaginous crust, which is somewhat ligamentous, for by putrefaction it peels off, like a membrane, with the common periosteum. Both the cavity and eminence serve for the motion of the condyle of the lower jaw. The surface of the cavity is directed downward, that of the eminence downward and backward, in such a manner that a transverse section of both would represent the italic letter *S*. Though the eminence may, on a first view of it, appear to project considerably below the cavity, yet a line drawn from the bottom of the cavity to the most depending part of the eminence, is almost horizontal, and therefore nearly parallel with the line made by the grinding surfaces of the teeth in the upper jaw; and when we consider the articulation farther we shall find that these two lines are so nearly parallel that the condyle moves almost directly forwards in parting from the cavity to the eminence; and the parallellism of the motion is also preserved by the shape of an intermediate cartilage.

In this joint there is a moveable cartilage, which, though common to both condyle and cavity, ought to be considered rather as an appendage of the former than of the latter, being more closely connected with it; so as to closely accompany it in its motion along the common surface of both the cavity and eminence. This cartilage is nearly of the same dimensions with the condyle, which it covers, is hollowed on its inferior surface to receive the condyle; on its upper surface it is more unequal, being moulded to the cavity and eminence of the articulating surface of the temporal bone, though it is considerably less, and is therefore capable of being moved from one part of that surface to another. Its texture is ligamento cartilaginous."

(To be continued).

FIRE INSURANCE.—A CAUTION.

By THOMAS FLETCHER.

It must be remembered that in every case of fire the Insurance Company can demand a full inventory of everything lost or damaged, with the value of each; and every item of this can be disputed by the Company. To make a correct list (usually demanded within 15 days) would be a total impossibility, and if the matter goes to arbitration, the costs may be actually more than the amount awarded; this has happened in a recent case. The compulsory arbitration is a useful device of the fire companies to keep all cases out of the public press and prevent unpleasant exposures.

The only method is to obtain from the insuring company a written acknowledgment that the goods insured are of the value stated, this would, of course, mean a visit and examination by one of the inspectors or assessors, but a guinea would be ample payment for this, and it would be well expended in the prevention of risk of total loss. I think it may safely be stated that in almost every case it would be impossible to replace the household goods for the sum for which they are insured. It would be absurd to accept the statement that all cases are liberally dealt with, such an insurance is not of the slightest value, the companies are carried on not in the interest of the insured but to make a profit for the shareholders, liberality is totally out of the question, it is a simple and necessary matter of business to pay as little as possible and verbal promises have no value whatever.

British Journal of Dental Science.

LONDON, SEPTEMBER 15, 1901.

DENTAL EDUCATION.

The holiday season approaches its termination and, amongst others, Medical and Dental Students are reminded that the resumption of work is at hand. Although the commencement of the Winter Session no longer has the same importance compared with that of the Summer Session (seeing that the Student may begin his work with equal advantage at either period), yet as a survival of past curricula, the October entry of Students is still regarded by many as the academic one. The new dental student is therefore prepared to find some remarks especially addressed to himself. He will probably have had his pre-professional path strewn with certain school Calenders and other announcements, and with a certain amount of discernment has been able to form some idea as to what lies before him. And yet perhaps it is permissible to suggest to such an one some reflections.

There is still manifested the tendency to secure more efficient teaching and examination with the view of obtaining a well-qualified dental surgeon for the public benefit. And in spite of certain croakers it must, we think, be apparent to those able to compare what obtained not many years ago with the practice of to-day that a wonderful advance has been made. Not only is the social and professional position of the hospital-trained dentist firmly secured at a higher level, but the relationship between him and his patients has considerably

improved. His duty towards them is founded more upon professional than upon commercial ideas, and the judgment of a conscientious professional man is accepted as being of real value from the belief that the opinion is given in the best interests of the patient irrespective of the amount to be paid in fees. All the circumstances connected with our improved methods of dental education have no doubt tended to bring about such results, and as time goes on matters will improve still more.

It would seem that the authorities concerned with the framing of the dental curriculum are of opinion that nothing additional is required in the way of securing finger-training and manipulative ability, but that certain extensions and additions of scientific subjects are necessary in order that the future practitioner may be enabled to regard his patient with a wider mental vision, and employ his surgical skill to the best advantage. The list of lectures and demonstrations now required of the student show him that he must become much more than a mere bower of teeth and drawer of stumps. The English College of Surgeons, for instance, now requires three examinations instead of one, and next year two additional subjects, Bacteriology and Dental Materia Medica, will be added to the requirements. As perhaps some consolation it has also been decided that at the final examination the general and dental subjects may be taken separately, or a student may be credited with one if he should fail in the other. Altogether it is no light task which the present dental student undertakes and the time allowed for it is none too much. Indeed we have heard it urged that the doubtful third year now supposed to be given to dental mechanics should be brought on to the Hospital side and a full five years thus be secured. Much depends no doubt upon the capacity of the individual student, but it is the average one who must be catered for.

ANGINA LUDOVICI.—What seems to have been a case of this kind is reported in the *Sydney Daily Telegraph*:—David Mayne, who was 36 years of age, had toothache and

went to a dentist, who, however, declined to draw the tooth. Mayne then consulted Dr. Stanley, who advised him to go into the Hospital. He accordingly did so, and upon examination it was discovered that an abscess had formed in his neck. An operation was therefore performed, but although it was so far successful, his life could not be saved. The immediate cause of death was septic pneumonia, caused by inhaling some of the matter from the abscess into the lung.

TOOTH-BRUSHES FOR SCHOOL CHILDREN.—The Inspector of the Local Government Board has recently suggested that the children under the care of the Malmesbury Board of Guardians should have tooth-brushes and the attendance of a dentist. The *Wiltshire Chronicle* wonders what the Guardians will think of this, and thinks pomades, hair-restorers and rouge are quite as necessary. "At a venture, the Inspector's suggestion might be put down as one of the results of the silly season; but it would be far nearer the truth if one said that the children's denticles were failing to fulfil their primary functions, the mastication of the food, since the Board's new dietary came into operation. Perhaps if the local Government Board were memorialised to this effect the prospect of a dentist on the permanent staff of the Malmesbury Guardians would be rendered more remote." We may allow the *Wiltshire Chronicle* to know something about the "silly season," but its views as to children's teeth and the value of a dentist's services leave much to be desired.

SALIVARY CALCULUS.—Salomon (*Prog. Med*, August 17th, 1901) records a case of calculus in Steno's duct in a woman, 64 years of age. It had been growing for thirty years. It at length gave rise to an abscess in the cheek, leading to its recognition and removal. It weighed over seven grams, and was composed chiefly of triple phosphate of lime

along with some carbonate of lime. Part of it had been embedded in the left cheek and part projected into the buccal cavity, resting on the second upper molar tooth. Such calculi are much less common in women than in men.

LADY DENTISTS IN FRANCE.—The *Westminster Gazette* says that dentistry is now an accepted and often flourishing profession of women in France. A correspondent writes "In a country town of Seine-et-Marne near which I am staying, a qualified young lady dentist enjoys the monopoly of tooth-drawing, a dentist's business in provincial France consisting of little else. French country folks, even of the wealthier sort, rarely, if ever, indulge in a set of false teeth; when they lose their own they get on as best they can without. But an aching tooth which interferes with business must go, and the cost of extraction is within the reach of all. Two francs is the modest fee for a consultation of the young lady just named, and she is said to be extremely dexterous in handling the forceps. But, then, Frenchwomen are the most dexterous creatures in the world, let them put their hand to what they will." We have heard that a Frenchman generally considers an English dentist skilful with his forceps, but according to the *Gazette's* correspondent, he will now give place to native talent. The correspondent, too, would seem to think that the supplying of artificial dentures would put the provincial patient on a level with the citizen. But the latter could probably tell his country cousin how to avoid artificial teeth by having his natural teeth saved.

DENTURES FOR WORKHOUSE INMATES.—Another of those delectable dental discussions by Guardians took place recently. The Abingdon Board made an amusing incident of a recommendation by the House Committee, on the report of the medical officer, that a female inmate, aged forty should be supplied with artificial teeth on the ground that the woman's health suffered from defective digestion. One guardian aids

he should like to be supplied with a set, and another confessed he had had no teeth for fifteen years. Another member suggested minced food for those inmates without teeth. On the other hand it was urged that teeth in this instance were in the nature of surgical appliances, and the recommendation was adopted.

TEETH IN PITCAIRN ISLAND.—Commander Knowling of H.M.S. Icarus in the course of his report upon a visit to the Island, says there are 126 people dwelling there. The early loss of the upper front teeth continues among many of the islanders, but the teeth of a number of adults, as well as of the children, are without a flaw. No one smokes or uses intoxicating liquor. Men, women, and children seem without exception to be in robust health, and full of vigour.

Abstracts of British & Foreign Journals.

SOME FURTHER CASES OF ETHYL CHLORIDE NARCOSIS.

By W. J. McCARDIE, B.A., M.B., B.C. Cantab.,
Anæsthetist to the General and Dental Hospitals,
Birmingham.

(Continued from page 798).

Seitz records a case of syncope during recovery—i.e., while the drug was still in the lungs and circulation. Besides a death recorded by Lotheissen as having occurred during administration in a bad subject, another one is reported by Zeitz of Zurich as happening 16 hours after operation to a patient in bad condition and who had kyphoscoliosis. Two grammes of ethyl chloride had been used for a tooth extraction and immediately afterwards respiration stopped. The patient temporarily recovered after the application of resuscitative measures but died later as related.

Case 10. *Opening and scraping of an abscess of the foot.*—The patient was a stout, rosy-cheeked girl, aged six years. She was prepared for operation. She had a little cough. The nasal airway was obstructed and the mouth was open; the patient probably had adenoids. An examination of the chest revealed nothing. The administration was begun with one or two cubic centimetres at a time; there was no trouble. After one minute the cleaning operation was begun, causing only a little leg movement and slight phonation. The conjunctival reflex was brisk, the colour was good, and the respiration was regular. A little more of the drug abolished rigidity, though there was still brisk reflex, as was, indeed, the case all through the operation, during which narcosis was perfect. The pupils were of moderate size. The child's condition looked a perfectly normal one. After stopping the administration consciousness returned as from sleep in less than a minute. The operative anæsthesia was four minutes. There were no after-effects at all.

Case 11. *Adenoids.*—The patient was a girl, aged fourteen years. She was purely a mouth-breather, pale and nervous. She was placed in a recumbent position with the head horizontal and a small prop in the mouth. Five cubic centimetres were sprayed on and soon another five cubic centimeters before operation. The child breathed well; after about half a minute the respiration became regular and the colour much improved; she coughed twice. The reflex was always briskly present, the pupils were of moderate size, the eyelids were tightly closed, and there was slight muscular rigidity. After about two minutes the mask was removed and the operation was performed. The patient coughed a little. She was of good colour throughout and at the end was apparently in an analgetic condition. Extremely little blood was lost and there was no congestion of the parts. Recovery of consciousness was rapid. The anæsthesia lasted about three-quarters of a minute or one minute—i.e. longer than with nitrous oxide. In about ten minutes the patient, who was perspiring a good deal, had a flushed colour, and a good pulse, walked upstairs. Afterwards she vomited some blood and felt drowsy till the afternoon. Ten cubic centimetres were used and probably about seven cubic centimetres were inhaled. The operator was very pleased with the result.

To be continued.

Dental News.

AUSTRALIAN COLLEGE OF DENTISTRY.

At the annual meeting of the life governors and subscribers of the Australian College of Dentistry the first vice-president (Mr. A. R. Clarke) occupied the chair. The annual report disclosed that the college was in a prosperous condition, and that there were now 67 students attending the college, of whom 31 were "sine curriculo" students, 14 first year students, 10 second year students, and 12 third year students. During the year 8 "vested rights" students had presented themselves for the "sine curriculo" examination of the Dental Board, of whom 6 passed. Eleven students presented themselves for the first year examination of the Dental Board curriculum, of whom 9 passed; 13 students presented themselves for the second year, of whom 12 passed. Lecturers had been appointed for every branch of the curriculum, and, in addition, there had been appointed during the year a permanent demonstrator of the prosthetic dentistry (Mr. W. A. Smith), and a permanent demonstrator of operative dentistry Dr. W. Orr Gray, L.D.S. D.D.S.). Sir J. Madden was unanimously re-elected president, and the vacancies on the council were filled by the election of Dr. A. P. Merrill, D.D.S., Dr. W. L. Aitken, D.D.S., and Mr. F. A. Down and Mr. F. A. Kernot was unanimously re-elected hon. treasurer.

BARROW COUNTY COURT.

Before His Honour Judge Steavenson.

Mary Beech, v. Benjamin Southall, was an action for damages by the former arising out of an assault for which the defendant had appeared before the Barrow magistrates and been fined.

Mr. R. B. D. Bradshaw, who represented the plaintiff,

described the nature of the assault which had been committed upon his client, stating that she was not only injured, but her artificial teeth were knocked out of her mouth and broken. These were taken to the dentist and repaired at a cost of 30s., and 5s. had also to be paid for medical attendance.

Mrs. Beech corroborated her solicitors statement as to the assault and the expenses which she had to meet in consequence of her teeth being smashed.

Defendant repeated a statement which he made when the case came before the magistrates, viz, that he could not pass the woman's house without being molested by her. He admitted being fined in the Police Court, but he held that this was a miscarriage of justice, as he certainly was not the aggressor, but on the night in question he merely pushed the woman off him in order to defend himself.

His Honour (to plaintiff): Did you go for him first?—No, sir. I did not.

His Honour: I must give judgment for the plaintiff for £1 14 6d. with costs.

Defendant: Well, I am perfectly innocent.

His Honour: Perhaps I will better explain to you why I make this sum of money. Because this woman, we say, pushes you, you are not therefore entitled to injure her in the manner you did and break her teeth. If she was the aggressor, you must merely repel the assault, and if you are assaulted you must only repel it with the same amount of force used against you. If in the course of the assault you do unnecessary injury, then you must pay.

Defendant: I have not done it.

His Honour: You have to the extent of £1 14 6d., and I must find against you. Now, how are you going to pay?

Defendant: I cannot pay it. I have no means.

His Honour ultimately ordered the defendant to pay at the rate of 4s monthly.

Dr. G. E. LOCKE, Brockport, considers that it would be strange if the secretions of the mouth should be acid on account of pregnancy, as it is undoubtedly a normal and healthy condition in a normal woman, and there appears no reason that it should affect the secretions in any way.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of AUGUST, 1901.

Number of Patients attended	1081
Number of Extractions	622
Number of Extractions under Anæsthetics	391
Gold Stoppings	174
Other Stoppings	259
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	278
Gold and Porcelain Crowns	7
Inlays	1
Total	1732

W. WRIGHT, L.D.S. Eng.,

H. HOPKINSON, L.D.S. Eng., *House Dental Surgeons.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

The Journal will be supplied direct from the office on PREPAYMENT OF Subscription as under:

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BRITISH JOURNAL OF DENTAL SCIENCE.

DENTAL STUDENTS' SUPPLEMENT.

SEPTEMBER 15TH, 1901.

I.—REGULATIONS OF THE GENERAL MEDICAL COUNCIL IN REGARD TO THE REGISTRATION OF MEDICAL AND DENTAL STUDENTS.

PRELIMINARY EXAMINATION.

Subject to such exceptions as the Council may from time to time allow, every Medical and Dental Student shall, at the commencement of his Studentship, be registered in the manner and under the conditions prescribed by the *Standing Resolutions* of the Council.

No person shall be allowed to be registered as a Medical or Dental Student unless he shall have previously passed (at one or more Examinations) a preliminary Examination in the following subjects of General Education.

- (a) English Language, including Grammar and Composition.
Marks not exceeding five per cent. of the total marks obtainable in this section of the Examination may be assigned to Candidates who show a competent knowledge of Shorthand.
- (b) Latin, including Grammar, Translation from specified authors, and translation of easy passages not taken from such authors.
- (c) Mathematics, comprising (a) Arithmetic; (b) Algebra, as far as Simple Equations, inclusive; (c) Geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions.
- (d) One of the following optional subjects:—
(a) Greek, (b) French, (c) German, (d) Italian, (e) any other Modern Language.

The Council will not in future, except in cases indicated in the following pages accept any Certificate of having passed, a Preliminary Examination in General Education, unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine or Dentistry have been passed in at the same time.

From and after January 1st, 1902, no person will be registered as a Medical or Dental Student who has not attained the age of 16 years; and for the purpose of ensuring the observance of this regulation, every applicant for registration in the Students' Register will be required to produce satisfactory evidence that this age has been obtained.

It shall be delegated to the Education-Committee to prepare and issue, from time to time, a List of Examining Bodies whose Examinations fulfil the conditions of the Medical Council as regards General Education.

Testimonials of Proficiency granted by Educational Bodies, according to the subjoined List (II), shall be accepted; the Council reserving the right to add to or take from the list.

A Degree in Arts of any University of the United Kingdom, or of the Colonies, or of such other Universities as may be specially recognized from time to time by the Medical Council, shall be considered a sufficient Testimonial of Proficiency.

II.—LIST OF EXAMINATIONS IN GENERAL EDUCATION TO BE RECOGNIZED BY THE MEDICAL COUNCIL AS QUALIFYING FOR REGISTRATION AS MEDICAL OR DENTAL STUDENT AS FROM THE FIRST DAY OF JANUARY, 1901.

(a.) UNIVERSITIES IN THE UNITED KINGDOM.

UNIVERSITY OF OXFORD :—

1. Junior Local Examinations ; (Certificate to include all the required subjects at one time.)
2. Senior Local Examinations (Certificates to include the required subjects.)
3. Responsions (Certificate to be supplemented by others showing that the required mathematical subjects have been passed in).
4. Moderations (Certificates to include the required subjects.)
5. Final Examination for a degree in Arts.

UNIVERSITY OF CAMBRIDGE :—

6. Junior Local Examinations : (Certificate to include all the required subjects at one time.)
7. Senior Local Examinations ; (Certificates to include the required subjects.)
8. Higher Local Examinations (Certificates to include the required subjects).
9. Previous Examination (Certificates to include the required subjects).
10. General Examination (Certificates to include the required subjects.)
11. Final Examination for a Degree in Arts.

UNIVERSITY OF DURHAM :—

12. Examination for Certificate of Proficiency (Certificate] to include all the required subjects at one time).
13. Preliminary Examination in Arts for Graduation in Medicine and Science (Certificate to include the required subjects).
14. Final Examination for a Degree in Arts.

UNIVERSITY OF LONDON :—

15. Matriculation Examination (Certificate to include the required subjects).
16. Final Examination for a Degree in Arts or Science.

VICTORIA UNIVERSITY :—

17. Preliminary Examination (Certificate to include all the required subjects at one time).
18. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF BIRMINGHAM :—

19. Matriculation Examination (Certificate to include all the required subjects at one time).

UNIVERSITY OF WALES :—

20. Matriculation Examination (Certificate to include all the required subjects at one time).
21. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF EDINBURGH :—

22. Junior Local Examination (Certificate to include all the required subjects at one time).
23. Senior Local Examination (Certificates to include the required subjects).
24. Preliminary Examination for graduation in Medicine and Surgery. (Certificate to include the required subjects).
25. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
26. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF ABERDEEN :—

27. Junior Local Examination (Certificate to include all the required subjects at one time).
28. Senior Local Examination (Certificates to include the required subjects).
29. Preliminary Examination for Graduation in Medicine and Surgery (Certificate to include the required subjects).
30. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
31. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF GLASGOW :—

32. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
33. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
34. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF ST. ANDREWS :—

35. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
36. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
37. Final Examination for a Degree in Arts or Science.
38. Final Examination for the Diploma of L.L.A.

UNIVERSITY OF DUBLIN :—

39. Public Entrance Examination (Certificate to include the required subjects.)
40. Examination for the First, Second, Third, or Fourth Year in Arts (Certificate to be signed in the approved form by the Medical Registrar of the University).
41. Final Examination for a Degree in Arts.

ROYAL UNIVERSITY OF IRELAND :—

42. Matriculation Examination (Certificate to include the required subjects).
43. Final Examination for a Degree in Arts or Science.

OXFORD AND CAMBRIDGE SCHOOLS' EXAMINATION BOARD :—

44. Lower Certificate (to include all the required subjects at one time.)
45. Higher Certificate (Certificates to include the required subjects).

(b).—MEDICAL LICENSING BODIES.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND.—

- *46. Preliminary Examination (Certificate to include all the required subjects at one time).

(c).—EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

COLLEGE OF PRECEPTORS —

47. Examination for a First Class Certificate (to include all the required subjects at one time).

* The Council has recommended that this Examination be discontinued.

48. Preliminary Examination for Medical Students (Certificate to include all the required subjects at one time).

SCOTCH EDUCATION DEPARTMENT:—

49. Examination for Lower Grade Leaving Certificate (to include all the required subjects at one time.)
 50. Examinations for Higher Grade or Honours Leaving Certificate (to include the required subjects).

EDUCATIONAL INSTITUTE OF SCOTLAND:—

51. Preliminary Medical Examination (Certificate to include all the required subjects at one time).

INTERMEDIATE EDUCATION BOARD OF IRELAND:—

52. Junior or Middle Grade Examination (Certificate to include all the required subjects at one time).
 53. Senior Grade Examination (Certificate to include the required subjects).

CENTRAL WELSH BOARD:—

54. Senior Certificate Examination.

(d).—INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

No Certificate from the Indian, Colonial and Foreign University College is accepted unless it shows that the Examination has been conducted by or under the authority of the Body granting it, includes all the subjects required by the GENERAL MEDICAL COUNCIL, and states that all the subjects of Examination have been passed in at one time; and copies of the form of the required Certificate are supplied by the REGISTRAR of the COUNCIL for the purpose.

In the case of Natives of India or other oriental countries, whose vernacular is other than English, an Examination in a classic oriental language may be accepted instead of an Examination in Latin.

III.—REGISTRATION OF DENTAL STUDENTS.

The Registration of Dental Students shall be carried on at the Medical Council Office, 299, Oxford Street, London, W., in the same manner as the existing Registration of Medical Students—as hereinbefore set forth—and subject to the same regulations as regards Preliminary Examinations, but in the case of Dental Students Professional Study may commence by pupilage with a Registered Dental Practitioner.

Students who commenced their professional education by apprenticeship to Dentists entitled to be registered, or by attendance upon professional lectures, before July 22nd, 1878, (when Dental Education became compulsory,) shall not be required to produce evidence of having passed a Preliminary Examination.

Candidates for a Diploma in Dental Surgery shall produce certificates of having been engaged during four years in Professional Studies, and of having received three years' instruction in Mechanical Dentistry from a registered Practitioner.

One year's *bona fide* apprenticeship with a registered Dental Practitioner, after being registered as a Dental Student, may be counted as one of the four years of professional Study.

The three years of instruction in Mechanical Dentistry, or any part of them, may be taken by the Dental Student either before or after his registration as a Student; but no year of such mechanical instruction shall be counted as one of the four years of Professional Study unless taken after registration.

IV. EDUCATIONAL BODIES.

LONDON.

DENTAL HOSPITAL OF LONDON, AND LONDON
SCHOOL OF DENTAL SURGERY,
LEICESTER SQUARE.

DENTAL AND MEDICAL OFFICERS.

Consulting Physician :—

Sir RICHARD DOUGLAS POWELL, Bart., F.R.S., M.D., F.R.C.P.

Consulting Surgeon—CHRISTOPHER HEATH, F.R.C.S.*Consulting Dental Surgeons:—*

T. ARNOLD ROGERS, M.R.C.S., L.D.S.

J. SMITH TURNER, M.R.C.S., L.D.S.

Dental Surgeons.

LEONARD MATHESON, L.D.S.

E. LLOYD WILLIAMS, M.R.C.S., L.R.C.P., L.D.S., L.S.A.

W. B. PATERSON, F.R.C.S., L.D.S.

W. H. WOODRUFF, L.D.S.

A. CLAYTON WOODHOUSE, M.R.C.S., L.D.S.

J. F. COLYER, M.R.C.S., L.D.S.

Assistant Dental Surgeons.

C. F. RILOT, M.R.C.S., L.D.S.

H. LLOYD WILLIAMS, M.R.C.S., L.D.S.

W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S.

G. HERN, L.R.C.P., M.R.C.S., L.D.S.

J. G. TURNER, L.R.C.P., F.R.C.S., L.D.S.

RUSSELL BARRETT, L.R.C.P., M.R.C.S., L.D.S.

N. G. BENNETT, M.A., B.C. Cantab., L.R.C.P., M.R.C.S., L.D.S.

D. P. GABELL, L.R.C.P., M.R.C.S., L.D.S.

W. H. MAY, L.R.C.P., M.R.C.S., L.D.S.

A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S.

W. S. NOWELL, M.A., L.R.C.P., M.R.C.S., L.D.S.

Anæsthetists.

W. DUDLEY BUXTON, M.D., B.S. Lond., M.R.C.P. Lond.

FREDERIC W. HEWITT, B.A., M.D. Cantab.

CARTER BRAINE, F.R.C.S.

HENRY DAVIS, M.R.C.S., L.S.A.

GEORGE KOWELL, F.R.C.S.

Assistant Anæsthetists.

E. A. BRIDGER, M.D.

R. T. BAKWELL, M.B., Lond., L.R.C.P., M.R.C.S.

R. J. PROBYN WILLIAMS, M.D. Durh.

H. BELLAMY GARDNER, L.R.C.P., M.R.C.S.

GEORGE FLUX, M.D. Brux.

H. J. PATERSON, M.A., M.B., B.C. Cantab.

Demonstrators.

A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S.

P. A. RICHARDS, F.I.C., F.C.S.

R. HERSHELL, L.D.S.

H. W. C. AUSTEN, M.B., M.S., L.R.C.P., M.R.C.S., L.D.S.

R. MCKAY, L.R.C.P., M.R.C.S., L.D.S.

H. E. CRIBB, L.D.S.

Medical Tutor—W. S. NOWELL, M.A., L.R.C.P., M.R.C.S., L.D.S.*Curator of Mechanical Laboratory.*

E. W. FLETCHER.

Demonstrations.—Demonstrations will be given every morning during the early part of each Session; and at the end of the Course those Gentlemen who have attended the Demonstrations to the satisfaction of the Staff, will be permitted to perform operations at the Hospital under the supervision of the Medical Officers and the House Surgeon.

A new Mechanical Laboratory has been fitted up and opened in which Demonstrations are given by the Lecturer on Mechanical Dentistry, on Continuous Gum Work, Making Obturators, and the Mechanical Treatment of Acquired and Congenital Cleft Palate, Pivoting, Bridge and Bar Work, &c., and the Students are enabled to make plates for the treatment of Irregularities and of Cleft Palate.

A skilled mechanic is appointed to superintend the laboratory, and the work done therein, who attends daily from 9 a.m. to 6 p.m., to give practical instruction to students.

The WINTER SESSION will commence on October 1st, 1900.

The SUMMER SESSION will commence 1st May, 1901.

LECTURES.

Dental Surgery and Pathology.—Mr. WILLIAM HERN, M.R.C.S., L.D.S.

Dental Anatomy and Physiology (Human and Comparative).—

Mr. CHARLES TOMES, F.R.S.

Mechanics of Dentistry.—Mr. E. LLOYD WILLIAMS.

Metallurgy in its application to Dental Purposes.—Dr. FORSTER MORLEY.

MEDICAL TUTOR.

The Medical Tutor attends four days in the week, from 5 to 7 p.m., for two months previous to the Annual Examinations. His classes are open to all Students, and are intended to assist those who are preparing for their examinations at the College of Surgeons; generally speaking, to guide and direct the studies of the pupils, and prepare them in the subjects for the Examinations.

FEES.

Fee for the Special Lectures and Hospital Practice required by the Curriculum, £50 in one payment, or 50 Guineas in two yearly instalments.

An extra fee of seven guineas will be payable for every extra six months' Hospital Practice.

The fee for three years' tuition in Mechanical Dentistry is 150 guineas.

All fees are payable on day of entry.

FEES FOR SINGLE COURSES.

				£	s.	d.
Dental Anatomy and Physiology,	One Course	...	...	5	5	0
"	Two Courses	...	...	8	8	0
Dental Surgery,	One Course	...	...	5	5	0
"	Two Courses	...	...	8	8	0
Dental Mechanics,	One Course	...	...	5	5	0
"	Two Courses	...	...	8	8	0
Metallurgy,	One Course	...	...	5	5	0
"	Two Courses	...	...	8	8	0

Qualified Medical Men or Gentlemen holding Foreign Diplomas to practise in their native country, can receive six months' practical instruction in the Hospital, fee 20 guineas.

The Medical Committee reserve to themselves the right to refuse any such candidates' application.

Students who perform Operations for Filling Teeth must provide their own Instruments for the same, the proximate cost of which is £25; a list can be had on application, but "The Kit" has been very carefully selected with a view to efficiency, and is well adapted for use in future practice.

The Saunders and Walker Scholarships of £20 per annum each, and Prizes are open for competition.

Further particulars may be obtained on application to the Dean, who attends at the Hospital every Wednesday from 10 a.m. to 12 noon.

MORTON SMALE, M.R.C.S., L.D.S., L.S.A., Dean.

NATIONAL DENTAL HOSPITAL AND COLLEGE, GREAT PORTLAND STREET, W.

FOUNDED 1861.

HOSPITAL STAFF.

Consulting Physician.

Sir W. H. BROADBENT, Bart., M.D., F.R.C.P.

Consulting Surgeon.

CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeon.

S. J. HUTCHINSON, M.R.C.S., L.D.S. Eng.

Visiting Physician.

JAMES MAUGHAN, M.D.

Visiting Surgeon.

E. W. ROUGHTON, F.R.C.S. Etc.

Dental Surgeons.

Monday	...	F. HENRI WEISS, L.D.S. Eng.
Tuesday	...	ALFRED SMITH, L.D.S. Eng.
Wednesday	...	MARCUS DAVIS, L.D.S. Eng.
Thursday	...	T. G. READ, L.D.S. Eng. D.M.D.
Friday	...	W. RUSHTON, L.D.S. Eng.
Saturday	...	C. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.

Assistant Dental Surgeons.

Monday	...	WILLOUGHBY WEISS, L.D.S. Eng.
Tuesday	...	EDGAR BEVERLEY, L.D.S. Eng.
Wednesday	...	S. F. ROSE, L.R.C.P., M.R.C.S., L.D.S. Eng.
Thursday	...	A. E. RELPH, L.R.C.P., M.R.C.S., L.D.S. Eng.
Friday	...	J. SIM WALLACE, M.D., D.Sc. L.D.S. Eng.
Saturday	...	H. J. RELPH, L.D.S. Eng.

Anæsthetists.

Monday	...	H. P. NOBLE, L.R.C.P., M.R.C.S.
Tuesday	...	F. W. COLLINGWOOD, L.R.C.P. Lond., M.R.C.S.
Wednesday	...	C. J. OGLE, M.R.C.S., L.S.A.
Thursday	...	G. EVERETT NORTON, M.R.C.S., L.S.A.
Friday	...	JAMES MAUGHAN, M.D.
Saturday	...	C. E. A. MACLEOD, F.R.C.S.

Demonstrator—STANLEY COLYER, M.R.C.S., L.R.C.P., L.D.S. Eng.

House Surgeons.

H. H. GUDGEON, L.D.S. Eng. ;

G. F. PRICKETT, L.D.S. Eng.

LECTURERS.

- Dental Anatomy and Physiology*—J. W. PARE, M.D. Edin., L.D.S. Eng.
Dental Surgery and Pathology—H. J. RELPH, M.R.C.S., L.R.C.P., L.D.S. Eng.
Dental Mechanics—HARRY ROSE, L.D.S. Eng.
Dental Metallurgy—HUGH CANDY, B.A., B.Sc. Lond., F.I.C.
Dental Materia Medica—C. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.
Curator of Mechanical Laboratory—W. L. MATTHEWS.

Courses of Demonstrations are also held in the subjects of Dental Mechanics, Dental Metallurgy, Dental Histology, and Practical Dental Surgery.

The Hospital is open for the reception of patients every week-day, from 9 o'clock till 11 o'clock a.m. Work may be continued till 2 o'clock p.m.

The accommodation and fittings are in accordance with the latest requirements for efficient teaching in all branches of the Science and Art of Dental Surgery.

The Conservation Room, with space for sixty chairs, is well lighted and warmed and ventilated after approved methods.

Other large rooms are arranged as a Mechanical Laboratory, Special Demonstration Room, Students' Common Room, &c.

There are also a Metallurgical Laboratory, Library and Museum. The Waiting Rooms, Extraction Rooms and Lecture Hall are on the ground floor.

The building is lighted throughout by electricity, and there is also a current for motors in the Stopping Room.

Each Student on entering the School passes through a preliminary course under the care of a Demonstrator, and all the members of the Staff take part in chair-side teaching, besides giving special demonstrations.

Dresserships.

These appointments are re-arranged every two months. The respective dressers for each day are required to be in attendance from 9 o'clock till the conclusion of the practice; and they will be under the direction of the Dental Surgeons of the day, and of the House Surgeon.

Clinical Lectures and Demonstrations.

Each medical officer will give clinical lectures, when opportune, during the ensuing year. Clinical lectures will also be given from time to time on cases of special interest; and also demonstrations upon the preparing and filling of cavities and other operations upon the teeth and contiguous parts.

The Visiting Physician and Surgeon give Demonstrations weekly, on cases of Oral Surgery, Anæsthetics, Cardiac, and Pulmonary lesions, and a member of the anæsthetic staff gives a course of lectures.

Attendance and Examination of Students.

A register is kept of the attendance of students at the Hospital Practice and lectures. An attendance of full two years at Hospital practice is required by the College of Surgeons of England; and no schedule will be signed unless the Student has attended the Courses of professional study to the satisfaction of the teachers. Class examinations are held frequently during the several courses, to test the progress and attention of the pupils; and at the end of each course of lectures a written examination is held, in accordance with the requirements of the College of Surgeons. An insufficient attendance at lectures disqualifies the student for receiving any prize of that year.

Tutorial classes are held to prepare for the final examinations, students who have, at this school, complied with the Dental portion of the Curriculum.

A limited number of pupils can be received in the Mechanical Laboratory for the three years' training.

LECTURES.

WINTER SESSION, COMMENCING ON MONDAY, OCT. 1st, 1900.

Dental Anatomy and Physiology, by J. W. Pare, M.D. Edin., L.D.S.E. On Tuesdays and Thursdays, at 5 p.m., during October, November, and December.

Dental Metallurgy, by Hugh Candy, B.A., B.Sc. Lond., F.I.C. On Tuesdays at 5 p.m., during January, February, and March.

Dental Mechanics, by Harry Rose, L.D.S. Eng. On Wednesdays at 6 p.m., during January, February and March.

Dental Materia Medica, by Ch. W. Glassington, M.R.C.S., L.D.S. Edin. On Tuesdays at 6 p.m. during October, November, and December.

SUMMER SESSION, 1902.

Dental Surgery and Pathology. By J. H. Relph, L.R.C.P., M.R.C.S., L.D.S. Eng. On Tuesdays and Fridays, at 4 p.m., during May, June, and July.

Surgery of the Mouth. By E. W. Roughton, M.D. Lond., F.R.C.S. Eng. On Mondays, at 5 p.m., during May, June, and July.

Courses of Demonstrations as required by the R.C.S. are also given.

FEES.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, £40.

PRIZES.

An Entrance Exhibition of the value of £15 is open for competition at the commencement of each Summer and Winter Session, after an Examination in the following subjects—

Physiology. (The Functions of Respiration, Circulation and Digestion.) Examiner—James Maughan, M.D.

Osteology. (Bones of the head). Examiner—E. W. Roughton, F.R.C.S.

Chemistry. Examiner—Hugh Candy, B.A., B.Sc. Lond., F.I.C.

Dental Mechanics. (Theoretical and Practical). Examiner—Harry Rose, L.D.S. Eng.

Prizes in Medals, and also Certificates of Honour are open for competition among the students of the Colleges, at the end of each Course of Lectures.

The Rymer Gold Medal for General Proficiency, value £5, will be awarded annually to the most distinguished Student of the year. His general conduct and attendance must have been in every respect satisfactory. At the time of the special examination for the Rymer Medal, the Student must not hold any qualification. The Medal will be awarded on the understanding that the Student completes the Dental Curriculum.

The Ash Prize, value £3 3s. in cash for the best Thesis on a subject in Dental Surgery.

The Dean attends the Hospital on Tuesday mornings at 10.30 a.m.

The public Distribution of Prizes will take place during the Winter Session.

SIDNEY SPOKES, M.R.C.S., L.D.S. Eng., *Dean*.

GUY'S HOSPITAL DENTAL SCHOOL.

The Winter Session will begin on October 1st, and end on March 31st.

THE STAFF OF THE DENTAL SCHOOL.

Dental Surgeons.

F. NEWLAND-PEDLEY, F.R.C.S., L.D.S. Eng.

W. A. MAGGS, L.R.C.P., M.R.C.S., L.D.S. Eng.

J. H. BADCOCK, L.R.C.P., M.R.C.S., L.D.S. Eng.

Assistant Dental Surgeons.

R. WYNNE ROUW, L.R.C.P., M.R.C.S., | M. F. HOPSON, L.D.S.E.

L.D.S.E.

| J. B. PARFITT, L.R.C.P., M.R.C.S.,

H. L. PILLIN, L.D.S.E.

| L.D.S. Eng.

Demonstrators in Practical Dentistry.

J. L. PAYNE, L.R.C.P., M.R.C.S., | P. S. CAMPKIN, L.D.S.E.

L.D.S. Eng.

| C. S. MORRIS, L.D.S. Eng.

E. B. DOWSETT, L.R.C.P., M.R.C.S., | F. J. PEARCE, L.D.S. Eng.

L.D.S. Eng.

Anæsthetists.

F. W. COCK, M.D., M.S.

| C. J. OGLE, M.R.C.S., L.S.A.

H. F. LANCASTER, M.D.

| F. J. STEWARD, M.B., M.S.

W. S. HANDLEY, M.D., F.R.C.S.

R. P. ROWLANDS, F.R.C.S.

LECTURES AND DEMONSTRATIONS.

WINTER SESSION.

<i>Dental Surgery</i>	MR. NEWLAND PEDLEY
<i>Dental Anatomy and Physiology</i>	MR. MAGGS.
<i>Metallurgy</i>	MR. GROVES, F.R.S.
<i>Practical Dental Metallurgy</i>	MR. HOPSON.

SUMMER SESSION.

<i>Operative Dental Surgery</i>	MR. BADCOCK.
<i>Dental Mechanics</i>	MR. WYNNE ROUW.
<i>Dental Microscopy</i>	DRS. BEDDARD & SPRIGGS.
<i>Demonstrator of Dental Mechanics</i>	MR. PILLIN.

An Open Entrance Scholarship in Practical Dental Mechanics of the value of £30, is offered for competition annually in the month of September. All particulars relating to the examination may be obtained upon application to the Dean.

Three Prizes, of the aggregate value of £35, are awarded annually.

Appointments. The following appointments are allotted to Dental Students according to merit; Two Dental House-Surgeons, two Assistant Dental House-Surgeons, one Assistant Demonstrator of Dental Microscopy, and six Demonstrators in the Conservation Room.

The connection of this School with Guy's Hospital Medical School enables Candidates for the L.D.S. Eng., to obtain at one institution the entire curriculum required by the Examining Board, an advantage which cannot be obtained elsewhere in London.

Preparation Classes are held before each examination in both the Special and the General Subjects of the curriculum.

A Prospectus, containing full particulars as to Fees, Lectures, Course of Study advised, the Residential College, &c., may be obtained on application to the Dean.

Dr. FAWCETT, Guy's Hospital, S.E.

THE VICTORIA DENTAL HOSPITAL OF MANCHESTER, DEVONSHIRE STREET, ALL SAINTS.

Consulting Physician:

J. HARDY, F.R.C.S.

Consulting Dental Surgeon.

H. CAMPION, M.R.C.S.

Dental Surgeons.

G. G. CAMPION, L.D.S.

E. P. COLLETT, L.D.S.

J. W. DUNKERLEY, L.D.S.

W. DYKES, L.D.S.

W. HEADRIDGE, L.D.S.

W. A. HOOTON, M.R.C.S., L.R.C.P.
L.D.S.

P. A. LINNELL, L.D.S.

F. W. MINSHALL, L.D.S.

I. RENSHAW, L.D.S.

W. SIMMS, L.D.S.

W. SMITHARD, L.D.S.

T. TANNER, L.D.S.

G. O. WHITTAKER, L.D.S.

Assistant Dental Surgeons:

H. T. DRESCHFELD, L.D.S.

D. HEADRIDGE, L.D.S.

H. W. NORMAN, L.D.S.

T. E. SHERRATT, L.D.S.

C. H. SMALE, L.D.S.

Administrators of Anæsthetics.

A. WILSON, F.R.C.S., F. H. WESTMACOTT, F.R.C.S.,

W. B. PRITCHARD, M.R.C.S., L.R.C.P.

Demonstrator—W. H. JONES, L.D.S.

Tutor—C. H. PRESTON, F.R.C.S., M.D., L.D.S.

Prosthetic Dental Surgeon—T. TANNER, L.D.S.

House Dental Surgeon—R. HOWARD, I.D.S., S. KERSH.

Curator of Museum—D. HEADRIDGE, L.D.S.

Two Dental Surgeons are in attendance each time the Hospital is open, and are assisted in the practical teaching by the Demonstrator and House Surgeons.

Preliminary Instruction.

During the first four months at the Hospital, new students are taken by the Demonstrator through a very complete course of practical instruction in all branches of operative dentistry. This course includes the actual preparation and filling of cavities out of, and in the mouth, the treatment of the different pathological conditions of the dental pulp, the treatment and filling of root canals, and the different methods of crowning.

A special course of demonstrations is given to more advanced students by the Lecturer on Operative Dentistry, and other demonstrations are given periodically by the dental staff.

Prizes.—The Fletcher prizes consist of a first prize, value £8, for second year's men, and a second prize, value £2, for first year's men. The Operating Prize, value £3 3s. A prize, value £2 2s. is given by Messrs. Ash & Sons for the best essay on some subject in general surgery in connection with the teeth. Two prizes, value one guinea and two guineas. The Regulation prize value £2 2s. Two prizes in Prosthetic Dentistry, value £3 3s., and £2 2s., open to students taking the Mechanical Apprenticeship at the Hospital.

FEES.—The Fee for the 2 years' Dental Hospital Practice to all who enter under the new Regulations of the College of Surgeons of England is twenty guineas, which must be paid in advance.

Prosthetic Department.—The Hospital is now prepared to give the necessary teaching in Mechanical Dentistry, and a limited number of pupils will be received.

A prospectus and all particulars on application to—

WILLIAM SIMMS, Dean.

THE OWENS COLLEGE, MANCHESTER.

Principal—ALFRED HOPKINSON, K.C., L.L.D., M.A., B.C.L.

Dean of the Department of Medicine—Professor ALFRED H. YOUNG, M.B., F.R.C.S.

DENTAL DEPARTMENT.

PROFESSORS AND LECTURERS.

Anatomy, Descriptive and Practical—Professor ALFRED H. YOUNG, M.B., F.R.C.S.

Physiology—Brackenbury Professor WM. STIRLING, M.D., D.Sc.

Chemistry—Professor HAROLD B. DIXON, M.A., F.R.S.

Organic Chemistry—Professor W. H. PERKIN, Ph. D., F.R.S.

Medicine—Professor J. DRESCHFELD, M.D., F.R.C.P.

Surgery—Professor G. A. WRIGHT, B.A., M.B., F.R.C.S.

Clinical Surgery—Professor F. A. SOUTHAM, M.A., M.B., F.R.C.S.

Dental Surgery—Lecturer, G. G. CAMPION, L.D.S.

Practical and Operative Dental Surgery—G. O. WHITTAKER, L.D.S.

Dental Anatomy and Physiology—C. H. PRESTON, M.D., F.R.C.S., L.D.S.

Dental Mechanics—Lecturer, THOMAS TANNER, L.D.S.

Dental Metallurgy—Lecturer, J. P. HEADRIDGE, B.Sc., L.D.S.

Dental Histology—Lecturer, DAVID HEADRIDGE, L.D.S.

The Dental Department forms an integral part of the Department of Medicine, and with the Manchester Royal Infirmary and the Victoria Dental Hospital affords the fullest opportunities for study to students preparing for any of the Dental Examinations.

In addition to the ordinary Dental Lectures required by the Licensing Bodies, a course on Operative Dentistry is given during the Summer Session, and these are supplemented by a series of Practical Demonstrations given by the Lecturer at the Victoria Dental Hospital.

There is also a special Course of Demonstrations in Dental Histology and Pathology, in which Students are enabled to mount for themselves Microscopic Specimens illustrating these subjects.

PRIZES.—Prizes or Medals and Certificates are awarded in all the classes on the results of the several examinations.

Special Prizes are also awarded at the Victoria Dental Hospital.

The WINTER SESSION commences on October 1st.

Prospectuses will be forwarded on application.

SYDNEY CHAFFERS, Registrar.

LIVERPOOL.

DENTAL HOSPITAL, MOUNT PLEASANT.

Consulting Physician—THOMAS ROBINSON GLYNN, M.D., F.R.C.P., Lond.*Consulting Surgeon*—FRANK T. PAUL, F.R.C.S. Eng.*Consulting Dental Surgeons.*

C. ALDER, L.D.S.

W. H. WAITE, L.D.S., D.D.S.

H. C. QUINBY, L.D.S.

Honorary Dental Surgeons.

R. EDWARDS, M.R.C.S., L.D.S. Eng. | J. W. LLOYD, M.R.C.S., L.R.C.P.,

L. J. OSBORN, L.D.S. Eng. | L.D.S.

W. H. GILMOUR, L.D.S. Eng. | J. P. ROBERTS, L.D.S. Ed.

E. H. MOUNTFORD, L.D.S. Eng. | J. TINDALL, L.D.S. Eng.

Assistant Honorary Dental Surgeons.

J. A. WOODS, L.D.S. Eng. | A. DRAKE, L.D.S. Eng.

J. W. SKAE, L.D.S. Eng. | J. W. TOMLINSON, L.D.S. Eng.

H. W. P. BENNETTE, L.D.S. Eng.

Demonstrator of Operative Dental Surgery.

F. J. BLIGHT, L.D.S. Eng.

Honorary Anæsthetist.—F. W. BAILEY, M.R.C.S., L.R.C.P.*House Surgeon.*

T. W. WIDDOWSON, L.D.S. Eng.

Assistant House Surgeons.

B. FRANK, E. C. WOODS.

Curator of Laboratory.

H. S. CHANNING.

Warden—W. H. GILMOUR, L.D.S. Eng.*Dean*—A. M. PATERSON, M.D.

This Hospital is a school of Practical Dental Surgery, duly recognised by the Royal College of Surgeons, and open to all Students of Dentistry, under such regulations as shall be determined by the Committee of Management. A new Laboratory has been built, and the Committee is prepared to accept pupils for the three years Mechanical Course. It is now incorporated with the Medical Faculty of University College, Liverpool.

The Hospital is open, daily, for the admission of patients from 9 till 11 a.m., and from (For extractions only), 6.30 to 8 p.m., except on Saturday.

Fees for Hospital Practice. £21 for two years' Hospital Practice required for the curriculum. Pupilage 3 years, £105.

Entrance Scholarship.—An Entrance Scholarship (value £20 for one year) has been presented to the school by Mr. Fletcher, of Warrington. An examination in Mechanical Dentistry will be held at the beginning of October.

Prizes amounting to about £60 are offered by the Committee.

A Prospectus giving further information may be obtained by applying to the Dean at University College, Liverpool.

BIRMINGHAM DENTAL SCHOOL,

DENTAL HOSPITAL.

71, NEWHALL STREET.

HOSPITAL STAFF.

Hon. Consulting Physician—R. M. SIMON, M.D.*Hon. Consulting Surgeons:*

JOHN ST. S. WILDERS, M.R.C.S., JORDON LLOYD, F.R.C.S.

Hon. Consulting Dental Surgeon—C. SIMS, L.D.S.*Hon. Dental Surgeons:*

H. FREWARD NEALE, L.D.S.

A. E. DONAGAN, M.A., L.D.S.

FRANK E. HUTLEY, M.R.C.S., L.D.S.

J. MOUNTFORD, L.D.S.

F. HAMPTON GOFFE, L.D.S.

Hon Assistant Dental Surgeons :

W. J. MADIN, L.D.S.	A. T. HILDER, L.D.S.
J. E. PARROTT, L.D.S.	W. M. KNOTT, L.D.S.
P. T. NADIN, L.D.S.	G. F. C. MATTHEWS, L.D.S.
F. HAMPTON GOFFE, L.D.S., G. V. SMALLWOOD, L.D.S.	

Hon Anæsthetists:

J. W. HAINES, M.D.	W. J. MCCARDIE, B.A., M.B., P.C.
J. H. BLAKENEY, M.R.C.S.	W. D. LAURIE, M.D., F.R.C.S. Ed.
T. S. SHORT, M.D., M.R.C.S.	J. RUST, M.D., C.M.
C. W. JOHNSTONE, M.R.C.S.	J. T. HEWITSON, M.D., C.M.
A. AVENT, F.R.C.S., M.B.	

Demonstrators.

R. DAMAN, L.D.S.	A. H. PARROTT, L.D.S.
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House Surgeon -- R. W. GRIFFIN, L.D.S.*Mechanical Instructor* -- G. COLE.

Provides all the necessary practice for the L.D.S. Eng.

The Dental Hospital was founded in 1858, and the Dental School was formed in conjunction with the Queen's College in 1880.

All the Lectures are given at the University.

The Dental Hospital having an annual attendance of upwards of ten thousand patients, affords every advantage for Students about to enter the profession to acquire a thorough practical knowledge as required by the Examining Board of the Royal College of Surgeons.

The system of teaching is such that each student is required to learn and to satisfactorily perform operations in the various forms of filling, in regulations, extractions with and without anæsthetics, and also in crown and bridgework, &c.

The Members of the Staff demonstrate methods of practice in which they are specially skilful, and special demonstrations are given to advanced students.

The Hospital is open for practice every morning at 9 a.m., when the Students are assisted and instructed in their work by the Officers of the morning.

Preliminary instruction is given to new Students during the first four months by the Demonstrators. This course of instruction includes diagnosis, extractions, the study of the teeth, the dental tissues and the dental pulp, and the treatment of other pathological conditions, the preparation and filling of teeth, in artificial maxilla, and in the mouth and the making of the various kinds of crowns.

The Mechanical Laboratory is under the control and superintendence of two honorary officers and a skilled mechanic. Each student is required to take models of the jaws, make and fit in various typical examples of dentures, thus enabling them to meet the requirements of the mechanical examination of the Royal College of Surgeons.

The examinations are held annually, prizes and certificates are awarded where sufficient merit is shown in the following subjects:—

Best preliminary work; Advanced operative work; Best series of regulation cases; Mechanical work; Anæsthetics; The Green Memorial Medal; Essay on a given subject; C. Ash & Sons' Prize.

Fees—For two years' Hospital Practice the fee is twenty guineas, which must be paid in advance.

The Winter Session will commence on Tuesday, October 1st, 1901.

The Prospectus will be sent on application to

F. W. RICHARDS, Dean.

UNIVERSITY OF BIRMINGHAM.

DEGREES IN DENTAL SURGERY.

The Degrees of Bachelor of Dental Surgery and Master of Dental Surgery of the University are open to Students who follow the requisite Course in the University and have previously obtained a Diploma in Dental Surgery of one of the Licensing Bodies.

Winter Session will commence on October 1st, 1901.

Summer Session commences on April 15th, 1902.

THE STAFF OF THE DENTAL DEPARTMENT.

Dean—Professor BERTRAM C. A. WINDLE, M.A., M.D., D.Sc.

PROFESSORS AND LECTURERS.

Anatomy—Professor B. C. A. WINDLE, M.D., F.R.S.

Physiology—Professor E. W. WACE CARLIER, M.D.

Chemistry—Professor PERCY F. FRANKLAND, Ph.D., B.Sc., F.R.S.

Comparative Anatomy—Professor T. W. BRIDGE, M.A., D.Sc.

Physics—Professor J. H. POYNTING, D.Sc., F.R.S.

Pathology and Bacteriology—Professor R. F. C. LEITH, M.B., F.R.C.P.

Medicine { Professor R. SAUNDBY, M.D., F.R.C.P.
 { Professor A. H. CARTER, M.D., F.R.C.P.

Surgery { Professor BENNETT MAY, M.B., F.R.C.S.
 { Professor G. BARLING, M.B., F.R.C.S.

Dental Anatomy—J. HUMPHREYS, M.D.S., L.D.S., F.L.S.

Dental Surgery—F. E. HUXLEY, M.R.C.S., M.D.S., L.D.S.Ed.

Dental Mechanics—A. E. DONAGAN, M.A., L.D.S.Ed.

Dental Metallurgy—G. MELLAND, B.Sc., F.I.C.

Surgical Diseases of the Mouth—F. MARSH, F.R.C.S.

Medical Diseases of the Mouth—T. STACEY WILSON, M.D., M.R.C.P.

Dental Histology and Patho-Histology—DENER WHITTLES, B.D.S., L.D.S.Eng.

Practical Dental Surgery—W. T. MADIN, L.D.S.Eng.

The Dental Department forms an integral part of the Faculty of Medicine of the University of Birmingham, and with the General, Queen's and Dental Hospitals, affords the fullest opportunity for study to Students preparing for the Dental Degree of the University, and the Diplomas of Licensing Bodies.

An Entrance Scholarship of the value of £37 10s. od. is offered annually.

For Prospectuses and further information application should be made to J. HUMPHREYS, L.D.S., F.L.S., (Hon. Sec. of the School), or to GEO. H. MORLEY, Secretary of the University.

DEVON AND EXETER DENTAL HOSPITAL, EXETER.

President.

W. T. BAYNE, Esq., L.L.D., J.P.

Vice-President—REV. J. G. DANGAR, D.D.

Honorary Treasurer.

J. M. ACKLAND, M.R.C.S., L.D.S. Eng.

Consulting Surgeons.

A. J. CUMMING, F.R.C.S. Eng.

JAMES BANKART, M.B. Lond., F.R.C.S. Eng.

Consulting Dental Surgeon.

S. BEVAN FOX, L.D.S. Eng.

Dental Surgeons.

J. T. BROWNE-MASON, L.D.S. Eng. | J. M. ACKLAND, M.R.C.S., L.D.S.,

HENRY BIGING MASON, L.D.S. Eng. | Eng.

T. G. T. GARLAND, L.D.S.I. | T.A. GOARD, L.R.C.P.Ld., L.D.S. Eng.

W. H. GOODMAN, L.D.S. Eng.

Surgeon Administrators of Anæsthetics.

JOHN MORTIMER, M.B. Lond., M.R.C.S. Eng.

RUSSELL COOMBE, M.A. Cantab., F.R.C.S. Eng.

Honorary Secretary.

HENRY YEO.

Attendance on the practice of this Hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental Diploma.

The Hospital is open daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 a.m.

Pupils or any member of the Staff or other registered Practitioner (being a Life or Annual Governor) are permitted to attend the Practice of the Hospital, subject to the approval of the Medical Sub-Committee, on payment of Five Guineas annually to the Funds of the Institution. Students attending the practice of the Hospital must consider themselves strictly under the control of the Medical Officers, and must not undertake any operation without the consent of the Dental Surgeon for the day.

PLYMOUTH DENTAL HOSPITAL,

BANK STREET CHAMBERS, BANK STREET, PLYMOUTH.

The Dentists attend each day, at 9 a.m. except Sundays.

Pupils of any of the Dental Surgeons of the Plymouth Dental Hospital, or other Dentists holding a Diploma of the College of Surgeons, or Members of the Odontological Society, may attend the Hospital on the day of such practitioner as may agree to accept such pupils, on the payment of £1 is. per annum to the institution.

B. HAMILTON WHITEFORD, Hon. Sec.

EDINBURGH.

INCORPORATED EDINBURGH DENTAL HOSPITAL
AND SCHOOLS.*Consulting Medical Officers.*

Dr. ALEX. PEDDIE, F.R.C.P., Physician. — Dr. JOSEPH BELL, F.R.C.S., Surgeon.

Dr. JOHN SMITH, L.L.D., F.R.C.S., Surgeon-Dentist.

Dean—Mr. WILLIAM GUY, F.R.C.S., L.D.S., 11, Wemyss Place

Dental Surgeons.

Monday	...	...	...	...	Mr. J. G. MUNRO, L.D.S.
Tuesday	...	...	...	...	Mr. G. W. WATSON, L.D.S.
Wednesday	...	...	...	...	Mr. H. B. EZARD, L.D.S.
Thursday	...	...	...	...	Mr. J. S. AMOORE, L.D.S.
Friday	...	...	...	...	Mr. FRED PAGE, L.D.S.
Saturday	...	...	...	...	Mr. DAVID MONROE, L.D.S.

Assistant Dental Surgeons.

Monday	Mr. J. A. YOUNG, L.D.S., Mr. D. R. CAMPBELL, L.D.S. Mr. C. E. PAGE, L.D.S., L.R.C.P. & S.				
Tuesday	Mr. R. N. HANNAH, L.D.S.; Mr. F. J. TURNBULL, L.D.S., L.R.C.P., & S.E.				
Wednesday	Mr. T. GREGORY, L.D.S.; Mr. D. B. WILSON, L.D.S.				
Thursday	Mr. ROBERT LINDSAY, L.D.S.; Mr. J. MORRIS STEWART, L.D.S.				
Friday	Mr. SEWELL SIMMONS, L.D.S., Mr. J. MALCOLM, L.D.S.				
Saturday	Mr. H. H. CHAPMAN, L.D.S., Mr. W. G. MORGAN, L.D.S.				

Anæsthetists.

Monday	...	...	Dr. R. J. JOHNSTON.
Tuesday	..	...	Dr. J. BOYD JAMIESON, F.R.C.S.
Wednesday	...	...	Dr. F. M. WILLCOX.
Thursday	...	...	Dr. G. MATHESON CULLEN.
Friday	...	...	Dr. T. D. LUKE.
Saturday	...	...	Dr. D. A. FARQUHARSON.

Tutorial Dental Surgeon—Mr. J. D. HAMILTON JAMIESON, L.D.S.

Prosthetic Dental Tutor—Mr. J. DOUGLAS LOGAN, L.D.S.

Anæsthetic Tutor—Mr. J. H. GIBBS, L.R.C.S. and P., L.D.S.

Treasurer—Mr. THOMAS WALLACE, F.F.A., 64, Princes Street, Edinburgh.

Secretary—Mr. G. M. STEWART, W.S., 56, Frederick Street, Edinburgh.

Assistant Secretary—MISS MACPHAIL, 31, Chambers Street, Edinburgh.

Mechanical Tutor—Mr. GEORGE HODGES.

Janitor—EDWARD BROWN.

LECTURERS.

Dental Anatomy, and Physiology, Mr. WILLIAM GUY, F.R.C.S., L.D.S.

Practical Dental Histology, Mr. WILLIAM GUY, F.R.C.S., L.D.S.

Dental Surgery and Pathology, Mr. GEORGE W. WATSON, L.D.S.

Dental Mechanics, Mr. J. GRAHAM MUNRO, L.D.S.

Dental Materia Medica and Therapeutics, Mr. F. J. TURNBULL, L.R.C.P., & S., L.D.S.

Dental Metallurgy Mr. R. LINDSAY, L.D.S. Edin.

Introductory Dental Surgery, Mr. D. MONRO, L.D.S.

Introductory Conservative Dentistry, Mr. SEWELL SIMMONS, L.D.S.

Gold Fillings, Mr. D. ROBERTSON CAMPBELL, L.D.S.

Introductory Practical Dental Mechanics, Mr. J. DOUGLAS LOGAN, L.D.S.

GLASGOW.

DENTAL HOSPITAL AND SCHOOL,

5, ST. VINCENT STREET.

The Hospital is open daily except Saturday and Sunday, from 5 p.m. till 7 p.m.

The work of the Hospital is conducted as far as possible, by the Students, under the supervision of the Dental Officer of the day. Cases of special interest will be made the subject of clinical instruction or demonstration as they occur.

The practice of the Hospital may be entered upon at any time during the Session and attendance dated therefrom. Fee for the two years' practice required by the Curriculum, £15 15s. Fee for each course of Lectures, £3 3s.

DENTAL SCHOOL.

Dental Anatomy and Physiology, Human and Comparative by W. WALLACE, M.A., M.B., M.B.C.M., L.D.S.

The Lectures will be delivered in the Summer Session, on the evenings of Wednesdays and Fridays, at 8 p.m., and will be illustrated by Diagrams, Preparations, and Microscopic Specimens. Text Book—Tomes' Manual of Dental Anatomy, Human and Comparative.

Dental Surgery and Pathology, by J. M. MACMILLAN, L.R.C.S., & P. Ed., L.D.S.

These Lectures are delivered on Tuesdays and Thursdays during the months of May and June, at 8 a.m., and will be illustrated by recent specimens, and other Preparations and Drawings, &c. Text Books—Tomes' Manual of Dental Surgery, and Diseases and Injuries of the Teeth by Morton Smale and J. F. Colyer.

Dental Mechanics, by HUGH MACKAY, L.R.C.S., & P.E., L.F.P.S., L.D.S.

The Summer Session opens in April, and the Winter in October, concurrently with the opening of the Medical Schools.

All communications on matters relating to the Dental School should be addressed to D. M. ALEXANDER, Solicitor, 97, West Regent Street, Glasgow, who will forward detailed Prospectus of the School.

UNIVERSITY COLLEGE, LIVERPOOL.

SCHOOL OF DENTAL SURGERY.

President—J. A. WOODS, ESQ., L.D.S.

Vice-President—J. TINDAL, ESQ., L.D.S.

Hon. Secretary and Hon. Treasurer—L. P. DINN.

Assistant Secretary—F. SELLARS.

Librarian—G. B. ROBERTS. *Curator*—E. C. WOODS.

Council—Messrs. J. ANDERSON, BRYAN, and FRANK.

Dental Anatomy and Physiology and Dental Histology.

Professors PAUL, and C. S. SHERRINGTON, M.A., F.R.S.; Mr. WOODS, L.D.S. Eng.

Dental Surgery—E. J. M. PHILLIPS, L.D.S., M.R.C.S., L.R.C.P.

Dental Mechanics—E. A. COUNCELL, L.D.S.

Dental Metallurgy—T. L. BAILEY, Ph. D.

Dental Pathology—Professor BOYCE.

Practical Dentistry—The Staff of the Liverpool Dental Hospital.

Summer Session.

The various medical and dental lectures are given at University College. The anatomical department contains an excellent collection of skulls, illustrative of human and comparative dental anatomy. The dissecting room and theatre are lighted by electricity. The physiological and pathological department enter into occupation of new and spacious laboratories erected by the Rev. S. A. Thompson Yates. Fees.—The composition fee for all lectures is £50 in one payment on entrance or in two equal instalments (one-half on entrance and the remainder within twelve months); the fee for general hospital practice is £10 10s.

Further particulars can be obtained of

Professor A. M. PATERSON, Dean.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.

The Lectures commence on Tuesday, 15th October.

The Fees required for students attending general subjects necessary for the curriculum of the Royal College of Surgeons, Edinburgh, are the same as

those for the Conjoint Examining Board, as Candidates for the L.R.C.S.E. require to be in possession of a recognised Diploma in Medicine.

The Secretary of the School is Mr. R. N. RAMSAY, Solicitor, 24, Forrest Rd., Edinburgh, from whom the official Calendar may be had gratis.

INCORPORATED
DENTAL HOSPITAL OF IRELAND,
LINCOLN PLACE, DUBLIN

MEDICAL AND SURGICAL STAFF.

Consulting Physicians:

SIR FRANCIS R. CRUISE, M.D. Dub.
SIR JOHN W. MOORE, M.D., M.Ch. Dub., Pres. R.C.P.I.

Consulting Surgeon:

E. H. BENNETT, M.D., M.Ch. (Dub.), F.R.C.S.I.

Pathologist—JOHN MALLET PURSER, M.D.

Anaesthetists.

J. G. CRONYN, B.A., L.R.C.S.I., L.R.C.P.I. J. DALLAS PRATT, M.D., F.R.C.S.I. HENRY DRURY, M.D., F.R.C.P.I. T. PERCY KIRKPATRICK, B.A., M.D.	HERBERT C. MOONEY, M.B., B.Ch.; F.R.C.S.I. R. TRAVERS SMITH, M.D., L.R.C.P.I. ALFRED E. BOYD, M.A. LANGFORD SYMES, F.R.C.P.I.
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DENTAL STAFF.

Consulting Dentists:

R. H. MOORE, F.R.C.S.I.	DANIEL CORBETT, M.R.C.S.L.D.S. Eng.
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Dentists:

R. THEODORE STACK, M.D., M.Ch., F.R.C.S.I., D.M.D. (Harv.) L.D.S., Eng. A. W. W. BAKER, M.D., M.Ch., F.R.C.S.I., L.D.S.I.	D. CORBETT, B.A., F.R.C.S.I. G. W. YEATES, M.B., B.Ch., L.D.S.I. G. M. P. MURRAY, F.R.C.S.I. J. S. THOMSON, L.D.S. Ed. SHENSTONE J. BISHOP, L.D.S.I.
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Assistant Dentists:

K. E. O'DUFFY, L.D.S., Ed. G. P. MOORE, M.D., B.Ch., L.D.S.E. G. J. GOLDIE, L.R.C.P., L.R.C.S., L.D.S. Edin. MURRAY THOMSON, L.D.S. Edin. J. J. POTTER, L.D.S.I.	W. G. T. STORY, M.B., B.Ch., L.D.S.I. J. STANTON, L.D.S.I. F. H. G. PAKENHAM, L.D.S.I. HARRY WINDER, L.D.S. Eng., D.D.S. J. COCKBURN, L.D.S. Eng. D. L. ROGERS, L.D.S.I.
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House Surgeon—G. M. STIRLING, L.D.S.I.

DENTAL SCHOOL.

Established by the Board of Governors in connection with the Incorporated
Dental Hospital of Ireland.

LECTURERS.

Dental Surgery and Pathology.

A. W. W. BAKER, M.D., M.Ch., F.R.C.S.I., L.D.S.I.
W. G. T. STORY, M.B., B.Ch., L.D.S.I.

Dental Mechanics.

GEORGE J. GOLDIE, L.R.C.P., L.R.C.S., L.D.S. Ed.
KEVIN E. O'DUFFY, L.D.S. Ed.

Anæsthetics—JOHN G. CRONYN, B.A., L.R.C.S.I., L.R.C.P.I.

Orthodontia—GEORGE P. MOORE, M.D., B.Ch., L.D.S. Eng.

The Hospital Year commences the First Monday in October, which is the best time for students to enter.

FEES.

(All Fees are payable in full and in advance).

Dental Hospital Practice—*First year, £15 15s. ; *Second Year, £12 12s. ; †Six months, £5 5s. ; †Three months, £3 3s.

* Each year's Hospital Practice includes one course of lectures in Dental Surgery and Pathology, and one course of lectures in Mechanical Dentistry. These lectures are accepted by the various licensing corporations for the L.D.S. diploma.

† Courses marked thus are only for Surgeons intending to practise in the Colonies or remote country districts, or in the Army or Navy.

In addition to the above courses, Registered Dentists, who are members of the British Dental Association, will usually be permitted to take out a three months' course for a fee of Six Guineas.

For particulars of the Three Years' Apprenticeship in Mechanical Dentistry, which may now be taken in the Hospital Laboratory, apply to the acting Dean,
A. W. W. BAKER, M.D.

V. GENERAL HOSPITALS.

CHARING CROSS HOSPITAL.

Dental Surgeon—J. F. COLYER, L.R.C.P., M.R.C.S., L.D.S., who attends at the Hospital, two days a week, at 9 a.m. for Dental Operations. A course of Lectures on Dental Surgery is also given during January, February, and March, and Tutorial classes in Dental subjects three days each week throughout the year by Mr. COLYER.

Tutorial Classes are held twice weekly (4 to 5) by Mr. W. H. Unwin, M.B. Lond., F.R.C.S. Eng., in the subjects of Anatomy, Physiology, Pathology, and Surgery for Dental Students during their final Winter and Summer Session.

Students may serve as assistants to the Dental Surgeon for a period of three months.

The composition fee for dental students is 54 guineas, or 60 guineas, payable in two instalments of 30 guineas each.

A proportionate reduction of the above fees will be made to those students who have completed part of the curriculum at a recognized institution.

There is a Special Entrance Scholarship of the value of 30 guineas for Dental Students.

The hours of lectures have been specially arranged to suit the convenience of dental students. Charing-cross Hospital is within three minutes' walk of the Dental Hospital of London.

For further information apply to the Dean, Mr. Herbert F. Waterhouse, or to the Librarian and Secretary, Mr. J. Francis Pink, at the office of the Medical School, Chandos Street, Charing-cross, between the hours of 10 and 4, Saturday till 1 p.m.

LONDON HOSPITAL AND MEDICAL COLLEGE.

Dental Surgeons—Mr. CUNNINGHAM & Mr. DOLAMORE.

DENTAL DEPARTMENT.

Mr. Dolamore and Mr. F. M. Farmer give practical instruction during the Winter and Summer Sessions on Mondays, Tuesdays, Wednesdays and Thursdays at 9 a.m. In selecting from Candidates for the office of Dental Assistant, priority will be given to those who have attended the greatest number of Lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the Dental Department. A class for special instruction in filling teeth will be formed each term. Candidates for Dressership must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months, and to follow the practical course of demonstrations.

DENTAL SURGERY.

By W. H. DOLAMORE, M.R.C.S., L.R.C.P., L.D.S. Eng., and F. M. FARMER, L.D.S. Eng., Surgeon-Dentists to the Hospital.

Tuesday and Thursday, at 11 a.m.

This Course of Lectures, specially arranged for Medical Students, will be delivered during May and June.

The Lectures will be supplemented by demonstrations of practical work and will be specially directed to meet the requirements of the Medical Practitioner. It will comprise a short description of the Anatomy and Physiology of the Teeth, special attention being given to Oral Hygiene.

Irregularities of the Teeth, with special reference to cases which may be treated by surgical means as distinguished from those requiring dental appliances.

Dental Caries and its treatment, which will be specially directed to palliative dressings and simple fillings.

Diseases of the Dental Pulp and Periosteum and their treatment.

Neuralgia and other affections arising from dental causes.

The practical work will include exercises in the extraction of teeth on models specially prepared or on the Cadaver, and the preparation of cavities and simple fillings on Models specially prepared. The demonstrations will illustrate, as far as possible, the whole range of dental operations, with a view to showing what assistance can be afforded by the dental practitioner.

DENTAL ASSISTANTS.

Two or more Dental Assistants are appointed every three months. The terms of office date from the first Tuesday in January, April, July, and October.

Application for further particulars with reference to these classes may be made to the Warden, at the College.

MIDDLESEX HOSPITAL.

Consulting Dental Surgeon—J. S. TURNER, M.R.C.S., L.D.S.

Dental Surgeon—W. HERN, M.R.C.S., L.D.S.

Assistant Dental Surgeon—MR. W. S. NOWELL, M.A., M.R.C.S., L.D.S.

Students who intend to become Licentiates in Dental Surgery of the Royal College of Surgeons are admitted to attend the requisite courses of Lectures—which are arranged to fit in with the work at the Dental Hospitals—and Hospital Practice on payment of a fee of 54 guineas, in one payment, or by instalments of £42 on entrance, and £21 at the beginning of the Second Winter Session.

A Short Course of Lectures will be delivered on this subject during November and December. The instruction will be such as is likely to be useful to gentlemen entering the Army or Navy or engaging in Provincial or Colonial practice. The Lectures will be supplemented by practical demonstrations, which will be given every week during the Winter and Summer Sessions by the Dental Surgeon and Assistant Dental Surgeon.

Further information may be obtained from W. Pasteur, M.D., the Dean, or from the Resident Medical Officer at the Hospital.

KING'S COLLEGE, STRAND, W.C.

Special arrangements are made for Dental Students. Apply to the Dean.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

Dental Surgeons—MR. PATERSON, MR. ACKERY.

Assistant Dental Surgeons—MR. READ, MR. ACKLAND.

The Dental Department of the Hospital is open on Tuesday and Friday mornings at 9 o'clock. The practice of the department is recognised by the Royal College of Surgeons.

The fee for general subjects for Dental Students for the first winter is £33 1s. 6d., for the first summer £33 1s. 6d., or a single payment of £66 3s.

ST. GEORGE'S HOSPITAL.

Dental Surgeon—H. L. ALBERT, M.R.C.S.

Mr. Albert attends at the Hospital on Mondays and Fridays at 12 noon, and on Thursdays at 9.30 a.m. for Dental operations.

Fees for general subjects in Dental Surgery, exclusive of Practical Chemistry, £50, or £55, in two instalments: first year, £30; second year £25.

Further information can be obtained by application to Dr. ISAMBARD OWEN, Dean of the Medical School.

ST. THOMAS'S HOSPITAL.

Dental Surgeon—CHARLES EDWIN TRUMAN, M.A. Cantab, M.R.C.S.,
L.D.S.

Gentlemen may receive instruction in diseases of the teeth, and act as dressers, and can undertake operations, subject to the supervision of the Dental Surgeons, Tuesdays and Fridays at 10 a.m.

The fee for attendance on the *general* subjects required of the students in Dental Surgery, is, for the two years, £65, or by instalments, £55 for the first year, and £15 for the second year.

UNIVERSITY COLLEGE HOSPITAL.

Dental Surgeon—SIDNEY SPOKES, M.R.C.S., L.D.S.

Mr. Spokes attends at the Hospital on Tuesdays and Fridays, at 9.30 a.m. and delivers a Course of Lectures on Fridays at 5 p.m., during the months of November and December.

At University College a material reduction in the fees is made for students who are entered at a recognised Dental Hospital. For those who do not require Chemistry and Materia Medica, there is a Composition Fee of 50 guineas.

WESTMINSTER HOSPITAL.

Consulting Dental Surgeon—J. WALKER, M.D., M.R.C.S., L.D.S.

Dental Surgeons—C. W. GLASSINGTON, M.R.C.S., L.D.S., & E. GARDNER,
L.D.S.

Dental Department.

The Dental Surgeons, Mr. Glassington and Mr. Gardner, attend at 9.15 a.m. on Wednesdays and Saturdays, and Tuesdays and Thursdays respectively.

Mr. Glassington attends at 9.15 a.m. on Wednesdays, and Saturdays for practical demonstration of diseases and operations of the teeth.

The fee for attendance on the Dental Practice is £1 1s. for three months. The whole of the General Lectures and Surgical Practice required for the Dental Diploma of the College of Surgeons can be attended for 50 guineas in one sum on entrance, or for two sums of £27 10s. payable at the beginning of each year.

Mr. Glassington will give a series of Demonstrations on Dental Surgery and Pathology, to meet the requirements of the general student of Medicine, at an hour to be determined at the commencement of the Session.

A Scholarship value £20 is offered annually in September for Competition to commencing Dental Students.

The Annual Dinner will take place on the opening day. Charles Stonham Esq., F.R.C.S., Senior Surgeon to the Hospital.

in the chair. The Summer Session begins on May 1st. The Annual Distribution of Prizes will take place during the Summer Session.

The Winter Session will commence on Tuesday, October 1st.

THE ROYAL HOSPITAL, SHEFFIELD.

Has a dental department which is recognised as a dental hospital where students can take out their course of hospital practice. We are informed that a very fine laboratory has just been added, and arrangements come to with the Sheffield University for the formation of a dental school:

The Department has now, in conjunction with the Medical Department of the Sheffield University, been acknowledged by the Licensing Bodies as a Dental School, and is now in working order and open for the further admission of students:

W. B. TOLPUTS, L.D.S., Hon. Sec.

VI.—THE LICENSING CORPORATIONS.

Comparative Summary of Regulations for the Licence in Dental Surgery.

	Royal College of Surgeons, England *	Royal College of Surgeons, Edinburgh.	Faculty of Physicians and Surgeons, Glasgow.	Royal College of Surgeons, Ireland.
1—PRELIMINARY EXAMINATION.....	Compulsory on all who commenced their Professional Education after July 22nd, 1878. Must be registered as a Dental Student at the office of the General Medical Council, 299, Oxford St., London, W.	Compulsory on all who commenced their Professional Education after July 22, 1878. Must be registered.	Compulsory on all who commenced their Professional Education after August 1st, 1878. Must be registered.	All Examinations in General Education recognised by the General Medical Council. Must be registered.
2—Age at which the Candidate may present himself	Twenty-one.	Twenty-one.	Twenty-one.	Any age, for primary, 21 for final.
3—DURATION OF PROFESSIONAL EDUCATION.....	Four years subsequent to registration.	Four years.	Four years.	
4—COURSES OF LECTURES, &c., to be attended at a recognized School :— Chemistry and Physics ... Practical Chemistry Dental Metallurgy Practical Dntl. Metallurgy	Instruction. Instruction. One course. Ditto.	One Winter course. Three months One course.	With practical laboratory work, Six months. Three months, with practical work and demonstrations. Three months.	One Winter course One course.
Dental Mechanics	Ditto.			
Practical Dntl. Mechanics	Ditto.			

* The above Regulations apply only to Candidates who registered as Dental Students before the 1st of January, 1897.

Dental Anatomy and Physiology	Ditto.	Three months.	Three months.	One course.
Dental Histology	Ditto.			
Dental Surgery and Pathology	Two courses.	Three months.	Three months.	
Practical Dental Surgery	One course.	Three months.		
Surgery of the Mouth.....	Not less than 5 lectures	Three years' pupillage.		
Dental Bacteriology	One course.			
Dental Materia Medica....	One course.			
Practice of Dental Surgery				
in a recognized Dental Hospital, or in the Dental Department of a recognized General Hospital	Two years.		With demonstrations, 12 months.	One year.
Anatomy	One course of six months.	Two years.	Six months.	One Winter course.
Physiology	Ditto.	One course of 6 months.	Six months.	One Winter course.
Practical Physiology	Ditto.	One Winter course.	Six months (including the elements of Surgical Pathology).	One Winter course.
Surgery	Ditto.	Ditto.	Six months (including the elements of General Pathology).	One Winter course.
Medicine	Ditto.	One Winter course.		
Dissections and Demonstrations	Twelve months.	One Winter course.		
Practice of Surgery	Two Winter Sessions.			
Clinical Lectures in General Hospitals	Two Winter Sessions.	Twelve months.*		
5—FEE	£21.2s. £3 3s. for Pr. Sci. Ex., £2 2s. for 1st Prof. Ex., £5 5s. 2nd Prof. Ex., and balance before Lic. is granted.	£10 10s. Candidates who commenced after Oct. 1, 1896, shall pay £15 15s.	£10 10s. for Candidates registered before Oct., '96. Candidates registered after that date, £15 15s.	£10 10s.
6—LEAST period during which unsuccessful Candidates are referred to their studies	Six months, subject to the decision of the Board.	Three months.		

7—PARTICULARS OF EXAMINATION

Royal College of Surgeons
England.*

Pr.Sc.Ex., Chem. & Phys.
written & practical.
1st Prof. Ex., Mech. Dent.
& Dental Metallurgy.
Final Prof.Ex. (A) *Written*:

On General Anatomy,
Physiology, Pathology
and Surgery, Dental
Anatomy, Physiology,
Pathology and Surgery.

(B) *Practical*.

(1) On the treatment of
Dental Caries, and may
be required to prepare
and fill cavities with
any material, or to do
any other operation in
Dental Surgery.

(Candidates must provide
their own instruments.)

(2) On the Mechanical
and Surgical treatment
of the various irregular-
ities of children's teeth.

(c) *Oral*.

Comprises the several sub-
jects included in the
curriculum of profes-

Royal College of Surgeons,
Edinburgh.

Written and Oral:

First Part—*Anatomy*,
Chemistry, (including
Physics), Physiology.

Second Part—*Surgery*,
Medicine, Therapeutics,
and special subjects,
of Dental Anatomy and
Physiology, Dental Sur-
gery & Pathology, and
Dental Mechanics, with
Dental Metallurgy, Reg-
istered Medical Practi-
tioners are examined on
the special subjects only.
Practical Examination
given in a Dental Hos-
pital in Dental Surgery,
Pathology & Mechanics.

* Students who began
before July, 1895, are not
required to take more
than six months.

Faculty of Physicians and
Surgeons, Glasgow.

I.—For First examination
Chemistry and Physics,
Human Anatomy and
Dissections (with de-
monstrations), Physio-
logy (in the case of stu-
dents regd. on or after
Oct. 1, '98, with practi-
cal laboratory work, or
a separate course of
practical physiology).
II.—For Final Exam.—

Surgery (including the
elements of Surgical
Pathology), Medicine
(including elements of
General Pathology).

* * * In the case
of Candidates regd. be-
fore Oct. 1, '98, a course
of *Materia Medica* for
three months is also
required. Clinical Sur-
gery and Medicine.

Dental Anatomy and Phy-
siology, Human and
Comparative, (in the
case of Dental Students
regd. on or after Oct. 1,

Royal College of Surgeons,
Ireland.

For Pre. Exam. (First
Winter and first Sum-
mer, Second Winter and
second Summer), Dis-
sections, Anatomy, Lec-
tures, Chemistry, Sur-
gery, Practical Chemis-
try, *Materia Medica*,
General Hospital Prac-
tice, Dissections, Phy-
siology, Medicine, Gen.
Hospital cond. free,
Practical Histology.

For Pre. Dental Exam.
Third Winter and Third
Summer. Fourth Winter
and Fourth Summer,
Dental Hospital includ-
ing Dental Surgery and
Pathology, and Mechan-
ical Dentistry.

sional education, and is conducted by the use of preparations, casts, drawings, &c.
The Final Examination consists of 2 parts.
Part I. General Anatomy, Physiology, Surgery and Pathology. Part II. Dental Anatomy, Physiology, Surgery and Pathology. These parts may be taken together or separately.

'98, with practical work and demonstrations in Dental Histology), Dental pathology and Surgery (in the case of students regd. on or after Oct. 1, '98, with Materia Medica and Therapeutics in their application to Dental Surgery), Dental Metallurgy (with practical work and demonstrations), Dental Mechanics (with practical work and demonstrations).

That he has for 2 years attended the practice of a recognised Dental Hospital, or of the recognised Dental Dept. of a Gen. Hospital. That he has before or after registration as a Dental Student received for 3 years practical instruction in Mechanical Dentistry from a regd. Dentist or in the Mechanical Department of a recognised Dental School and Hospital.

8—DATES OF EXAMINATIONS

May and November.
The new Regs., apply to all Cand. who reg. on or after Jan. 1, '97.
MR. F. G. HALLETT,
Examination Hall, Victoria Embankment, London, W.

First and Second examinations.—
Nov., April, July.
JAS. ROBERTSON, Solicitor,
Clerk of College,
54, George Square, Edin.

Feb. May & Nov.

1900 October 21.
1901 April 7.
" July 8.

Dr. ALEX. DUNCAN,
Faculty of Physicians
and Surgeons,
Glasgow.

The Registrar,
Royal College of
Surgeons, Dublin.

For further information apply to

VII. SCIENTIFIC ASSOCIATIONS.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN
20, HANOVER SQUARE, W.

OFFICERS FOR 1901-1902.

President—W. A. MAGGS.*Vice-Presidents* :

RESIDENT.
W. H. WOODRUFF.
ARTHUR S. UNDERWOOD.
F. J. BENNETT.

NON-RESIDENT.
G. BRUNTON (Leeds).
W. S. WOODBURN (Glasgow).
W. B. BACON, (Tunbridge Wells).

Treasurer—C. F. RILOT.*Librarian*—H. BALDWIN.*Curator*—J. F. COLYER.*Editor of the Transactions*—H. LLOYD WILLIAMS.*Honorary Secretaries.*

J. H. MUMMERY, (Foreign). A. HOPEWELL SMITH, (Council),
W. RUSHTON, (Society).

Councillors.

RESIDENT
J. H. REINHARDT.
H. G. READ.
R. WYNNE ROUW.
G. NORTHCROFT.
J. MANSBRIDGE
M. F. HOPSON
MORTON SMALE
R. DENISON PEDLEY
J. PERCY SMITH

NON-RESIDENT.
D. CORBETT, Junr., (Dublin).
REES PRICE, (Glasgow).
G. O. WHITTAKER, (Manchester).
T. MANSELL, (Birkenhead).
W. A. RHODES, (Cambridge).
W. GLAISBY, (York).
J. J. H. SAUNDERS, (Barnstaple).
E. A. BOGUE, (New York).
J. F. L. PIKE, (Sheffield).

EXTRACT FROM THE BYE-LAWS.

Objects and Constitution of the Society.

The Society is instituted for the cultivation and diffusion of knowledge in Dental Science, and in the branches of Science connected therewith.

The Society shall consist of Resident, Non-Resident, Corresponding, and Honorary Members.*

1. The Resident Members shall consist of gentlemen residing or practising wholly or partly in London or within ten miles of the General Post Office, St. Martin's-le-Grand.
2. The Non-Resident Members shall consist of gentlemen wholly practising beyond ten miles from the General Post Office.
3. The Corresponding Members shall consist of distinguished gentlemen residing in the Colonies of Great Britain or in Foreign Countries.

* Candidates for the Resident, Non-Resident, or Corresponding Membership of the Society shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery, and are also Licentiates in Dental Surgery, or qualified Practitioners of Medicine or Surgery: or possess such a Diploma or Degree as in the opinion of the Council, will qualify them for the Membership of the Society.

4. The Honorary Members shall consist of distinguished Practitioners of Dental Surgery who have retired from practice, of distinguished Medical Practitioners, and of gentlemen distinguished in any department of Science.

Persons who advertise in the public journals, or by circular, either their profession or their professional attainments or public appointments, or anything relating to their mode of practice or charges, or who expose for public inspection specimens of operative or mechanical Dentistry, or conduct their practice in any way which in the opinion of the Council of this Society, is derogatory to the respectability of the Profession, shall not be considered eligible for nomination as members.

No person being the proprietor of a secret remedy, or holding a patent relating to the requirements of Dental Practice, shall be a member of this Society.

Election and Admission of Resident and Non-Resident Members.

Candidates for Resident Membership shall be recommended by four or more Members, two at least signing from personal knowledge. Candidates for Non-Resident Membership shall be recommended by three members, one at least signing from personal knowledge.

All recommendations for resident or non-resident members shall be submitted to, and approved of, by the Council, before being proposed to the Society for ballot.

Contributions of Members.

Every person elected a Resident Member shall pay Three Guineas as an Admission Fee and an Annual Subscription of Two Guineas, *in advance*.

Every person elected a Non-Resident Member shall pay Two Guineas as an Admission Fee and an Annual Subscription of One Guinea in advance.

The Entrance Fees and First Annual Subscriptions shall be paid on admission, and the subsequent Annual Subscriptions in the month of November in each year; but new members proposed at or after the January Meeting, shall not be required to pay any Subscription for the current Session.

Ordinary Meetings.

The Ordinary Meetings of the Society shall be held on the first Monday in each month, from November to June, both inclusive, at 8 p.m. precisely, except in the month of January, or when an Act of Parliament holiday occurs on that day, the meeting shall be held on the Monday next ensuing.

Each Member may introduce two Visitors at these Meetings on writing the Visitors' names in a book to be kept for that purpose. The same Visitors will not be admitted more than three times during one Session.

Annual General Meeting.

The Annual General Meeting of the Society for the election of the Officers and Councillors, &c., shall be held on the evening of the first Monday in June every year.

Society's Transactions.

The Transactions of the Society, under the designation of "Transactions of the Odontological Society of Great Britain," shall be printed at such times and in such manner as the Council shall direct.

The "Transactions" shall be presented to all Resident and Non-Resident members of the Society who have paid their Annual Subscriptions.

DENTAL STUDENTS' SOCIETY.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND,

31, CHAMBERS STREET, EDINBURGH.

President—C. REES PRICE, L.D.S.

Vice-Presidents.

Mr. LESLIE FRASER, L.D.S. Mr. HERBERT B. EZARD, L.D.S.,

Council.—Messrs. J. S. AMOORE, L.D.S., FREDERICK PAGE, L.D.S.,
A. K. FINLAYSON, L.D.S., OSWALD FERGUS, L.D.S.

Treasurer—Mr. W. GUY, F.R.C.S., L.R.C.P.E., L.D.S.

Curator and Librarian—Mr. D. R. CAMPPELL, L.D.S.

Secretary—Mr. FREDK. J. TURNBULL, L.R.C.P., S.E., L.D.S.

Ordinary Meetings.—The Society meets on the second Thursdays of November, December, January, February and March.

EXTRACTS FROM THE CONSTITUTION AND LAWS.

Name and Objects.

The Society shall be named the "Odonto-Chirurgical Society," and shall have for its objects the Promotion and Diffusion of Knowledge in matters connected with Dental Surgery; the furtherance of communications on such subjects by members of the Society; and otherwise to advance the interests of Dental Surgery as a branch of Medicine.

Ordinary and Honorary Members.

The Society shall consist of Ordinary, Honorary, and Corresponding Members.

(A.) Ordinary Members. Gentlemen shall be eligible for Ordinary Membership who hold the Licentiate in Dental Surgery of any of the Licensing Bodies of Great Britain or Ireland, or a Colonial or Foreign qualification recognised by the General Medical Council, entitling them to practise dentistry in Great Britain.

(B.) Honorary Members. Gentlemen (practising or retired) who hold a qualification recognised by the General Medical Council, or Foreign or Colonial Dentists holding a qualification recognised in their own country, who may have distinguished themselves in the practice of, or in connection with Dentistry, and Medical or Scientific men who may have distinguished themselves in connection with Dentistry, shall be eligible as Honorary Members.

(C.) Corresponding Members. Gentlemen resident in the Colonies or Foreign Countries, holding qualifications recognised in their respective countries shall be eligible as Corresponding Members.

The Ordinary Members shall have vested in them the Government of the Society, and all cases not otherwise specified shall be decided by them by a majority of votes by ballot if required.

Obligations of Members.

No member shall be permitted to advertise his profession, his modes of practice, or his charges, either in the public journals or by circular. They shall not be permitted to expose specimens of their work for public inspection, nor to carry on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way which the Society may consider derogatory to the Profession, so long as they continue members of the Society. But members who practise in towns other than that in which they reside, shall be allowed to intimate their visits; such intimations being subject to the approval of the Council.

Applications for Membership.

Candidates for admission as Members of the Society shall be recommended by an Ordinary Member, and the recommendation seconded by another. After being approved by the Council, such recommendation shall be read to the Society at an Ordinary Meeting, and shall lie over to the next, when the Candidate shall be balloted for, when two-thirds of the Members present must be in his favour to secure his election.

Contributions.

Ordinary Members shall pay an Entrance Fee of Half a Guinea, and Half a Guinea of an Annual Subscription in advance. All Annual Subscriptions to date from the 1st March preceding the Candidate's admission.

NORTH OF ENGLAND ODONTOLOGICAL SOCIETY, NEWCASTLE-ON-TYNE.

Council 1901-2.

President—J. W. DANIELS, L.D.S. Edin.

Vice-Presidents:

W. D. MOON, L.D.S. Eng. | J. MORTON, L.D.S. Edin.

Hon. Treasurer—W. G. ROUTLEDGE, L.D.S. Edin.

Hon. Secretaries:

J. G. RANKEN, L.D.S. Eng., 14, Grange Crescent, Sunderland.

RALPH CARR, L.D.S. Edin., 38, Northumberland Street,
Newcastle-upon-Tyne.

Council:

J. KEKWICK, M.R.C.S., L.D.S. Eng. | J. T. JAMESON, L.D.S. Edin.

C. L. ROUTLEDGE, L.D.S. Edin. | W. G. ROUTLEDGE, L.D.S. Edin.

J. A. FOTHERGILL, M.R.C.S., &c. | T. R. D. WALKINSHAW, L.D.S. Edin.

W. SOMERVILLE-WOODIWS, L.D.S. Edin.

Extract from Laws.

The Society shall have for its objects the diffusion of knowledge, and the promotion of intercourse among Dentists, and the advancement of the general interests of the Dental Profession.

The Society shall consist of Ordinary and Honorary members:—

The Ordinary Members shall consist of gentlemen who are practising or have practised as dentists, and are registered under the Dentists' Act of 1878.

Obligation of Members.

Members shall not be permitted to advertise in the public journals, or by circulars, either their professional attainments, or public appointments, or anything relating to their modes of practice or charges: or to expose for public inspection specimens of operative or mechanical dentistry, or conduct their practices in any way which in the opinion of the Council is derogatory to the Profession.

Application for Membership.

Candidates for admission as Members shall be recommended by one Member from personal knowledge, and by one Member from general knowledge.

Meetings.

The Ordinary Meetings will be held in Newcastle-on-Tyne, on the third Thursday of each of the months, from October to February inclusive, at 6 p.m.

Contributions.

Members shall pay an Entrance Fee of five shillings on admission, and an annual subscription of half a guinea in advance.

MANCHESTER ODONTOLOGICAL SOCIETY

President—Mr. E. P. COLLETT.*Vice-Presidents*:—

Mr. W. DYKES.

Mr. W. A. HOOTON.

Council—Messrs. J. W. DUNKERLEY, F. W. MASTERS, A. B. WOLFENDEN,
G. O. WHITTAKER, E. HOUGHTON, P. A. LINNELL, W. DOUGAN,
S. MITCHELL, C. RIPON.*Treasurer*—Mr. H. PLANCK.*Librarian*—Mr. W. A. HOOTON. *Curator*—Mr. C. H. PRESTON.*Secretaries*:—

Mr. H. W. NORMAN (Council). Mr. T. E. SHERRATT, (Society).

EXTRACT FROM THE BYE-LAWS,

Name and Objects.

The Society has for its object the diffusion of knowledge and the promotion of intercourse among Dentists, and the advancement of the general interests of the Dental Profession.

The Society shall consist of Resident, Non-Resident, and Honorary Members.

- (a) The Resident Members shall consist of gentlemen practising as Dentists within five miles of the Manchester Royal Exchange.
- (b) The Non-Resident Members shall consist of gentlemen practising as Dentists beyond the above distance.
- (c) The Honorary Members shall consist of distinguished Dentists, or Medical Men, and of gentlemen distinguished in any department of Science, elected in accordance with Law 27.

Obligation of Members.

A Member shall not advertise in any form in the public journals, nor in any other way, nor shall he publish any circular, or pamphlet in which he sets forth anything relating to his mode of practice, or his fees. He shall not have his name, or address, on any notice-board in any public street, or thoroughfare, nor shall he expose for public inspection specimens of operative or mechanical dentistry. He shall not be the proprietor of any secret remedy, nor shall he conduct himself in any way which, in the opinion of the Council of the Society, is derogatory to the Profession.

Contributions.

Resident Members shall pay an entrance fee of half-a-guinea, and an annual subscription of one guinea, due in advance. Non-resident members shall pay an entrance fee of half-a-guinea and an annual subscription of half-a-guinea due in advance.

Non-resident Members becoming Resident shall pay the annual subscription of one guinea, and Resident Members becoming Non-Resident shall pay the annual subscription of half-a-guinea.

The entrance fee and first annual subscription shall be paid on admission, and the subsequent annual subscription in the month of October in each year; but new members, elected on, or after, the 31st of December in any year, shall pay the entrance fee and only half of the usual annual subscription for the current year of the Society.

The Council.

The Management of the Society's affairs shall be vested in a Council, who shall be elected by ballot by the Resident and Non-Resident Members at the Annual General Meeting of the Society.

Meetings.

Ordinary Meetings are held on the first Tuesday of every month from October to May inclusive.

THE BRITISH DENTAL ASSOCIATION,

(Incorporated June 3rd, 1880.)

32, LEICESTER SQUARE, LONDON.

President—S. J. HUTCHINSON, M.R.C.S., L.D.S.Eng.*Vice-Presidents.*

JOHN SMITH, M.D., F.R.C.S., Edin.

J. SMITH TURNER, M.R.C.S., L.D.S. Eng.

President of Representative Board—R. H. WOODHOUSE, M.R.C.S., L.D.S.Eng.*Treasurer*—W.H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S., Eng.*Honorary Secretary*—W. B. PATERSON, F.R.C.S., L.D.S. Eng.*Extracts from Memorandum of Association and Bye-laws.*

The objects for which the Association is established are the promotion of Dental and the allied Sciences, and the maintenance of the honour and the interests of the Dental Profession by

“The Periodical meetings of the Members of the Association and the Dental profession generally, in different parts of the country.

“The publication of a periodical journal, and by

“The maintenance of the spirit and provisions of the Dentists’ Act, by such lawful means as may be necessary, &c., &c.”

Extracts from the Bye-laws.

A person who is registered in the Dentists’ Register shall be eligible for election as a member of the Association, provided that he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a showcase exposed to public inspection; or by means of public advertisements or circulars, describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any registered Dental practitioner not disqualified by any Bye-law who shall be recommended as eligible by any three Members of the Association (the recommendation of one being from personal knowledge), and who has signed the appended form of application for admission and agreement as to terms of Membership, may be elected a Member by the Representative Board or by the Council of a recognized Branch.

The subscription is one guinea per annum, and each member is entitled to a copy of the Journal of the Association monthly, and to attend the Annual Meetings of the Association.

THE NORTH MIDLAND BRANCH OF THE BRITISH DENTAL ASSOCIATION.

1. *District.* This Branch includes Lancashire, Yorkshire, Cheshire, Derbyshire, and Nottinghamshire.

2. *Objects.* To aid in the carrying out of the Dentists’ Act; the periodical meetings of the members for the consideration of subjects of interest to the Profession; the cultivation of a professional spirit among practitioners throughout the district, the formation of District Sections for the further carrying out these objects.

3. *Membership:*

1. MEMBERS. Any, and only, a member of the British Dental Association may be elected a Member of this Branch by the Council on his sending an application signed by three members of the Branch to the Secretary of the Branch.

Note.—The Council of the Branch can elect a member to the Association at the same time to the Branch.

2. ASSOCIATES. Any registered Dental Practitioner who can subscribe to the Bye-laws of this Branch shall be eligible for election as an Associate of this Branch by the Council, on his sending an application signed by three members or Associates of the Branch to the Secretary of the Branch. Associates are entitled to attend the meetings of the Branch Association, but are not allowed to vote or hold office therein.
4. *Subscriptions.* Members, or Associates, Five Shillings per annum.
5. *Meetings.* Autumnal Meeting, October, 1901, Newark.
Spring Meeting, February, 1902.
Annual General Meeting, June, 1901, Liverpool.
Honorary Secretary, DAVID HEADRIDGE, 323, Oxford Road, Manchester.

DISTRICT SECTION.

LEEDS AND DISTRICT.

Hon. Sec.—R. L. YOUNG, 3a, Hillary Place, Woodhouse Lane, Leeds.
Members of this Society must be Members of the North Midland Branch.
Subscription Five Shillings per annum.
Meetings monthly during the winter.

METROPOLITAN BRANCH OF THE BRITISH DENTAL ASSOCIATION.

Composed principally of those members of the British Dental Association practising within the London postal district. The Branch meets three or four times a year. One meeting in the Summer is devoted to Demonstrations, and the Annual Meeting is held in January.

The qualifications of Membership are similar to those in the other Branches.

Honorary Secretary, W. H. DOLAMORE, 37, Queen Anne Street, Cavendish Square, W.

BRITISH DENTAL ASSOCIATION, WESTERN BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of the Branch, provided he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public inspection; or by means of public advertisements; or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any dental practitioner, being a member of the British Dental Association, who can subscribe to the conditions laid down in Bye law 4, who has been recommended as eligible by any member of this Branch, may be elected a member of the Branch by the Council.

Note. If the applicant be not previously a member of the British Dental Association, the Council has power to elect to the Association.

Hon. Sec., THOMAS ARTHUR GOARD, 28, West Southernhay, Exeter.

BRITISH DENTAL ASSOCIATION. EASTERN COUNTIES BRANCH.

Districts.

Norfolk, Suffolk, Cambridgeshire, Essex, Lincolnshire, Northamptonshire, Bedfordshire, Hertfordshire, and Bucks.

Bye Law.

Any Registered Dental Practitioner, who shall be recommended as eligible by any three members of the Branch, (one being from personal knowledge,) may be elected a member by the Council or the Branch. The election to be by ballot; three black balls to exclude.

Honorary Secretary, H. L. TRACEY, 25, Westgate Street, Ipswich.

BRITISH DENTAL ASSOCIATION SOUTHERN COUNTIES BRANCH.

The Branch shall consist of Members, Honorary Members. *No one shall be eligible for Membership who is not already a Member of the British Dental Association.* Any registered practitioner of good character, who does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window; or in a showcase exposed to public inspection; or by means of public advertisements circulars, or notices, describing his qualifications, appointments, scale of charges, modes of practice, patented or secret processes, may be elected a Member.

BRITISH DENTAL ASSOCIATION, SCOTTISH BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of this Branch, provided he be of good character; that he does not conduct his practice by means of the exhibition of dental

specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public inspection: or by means of public advertisements; or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any dental practitioner who can subscribe to the conditions laid down in Bye-law 2, who has been recommended as eligible by any of the members of this Branch, may be elected a member of the British Dental Association by the Council, and is eligible for election to the Branch.

Hon. Sec., J. J. G. S. ANGUS, 256, Bath Street, Glasgow.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE, W.C.

The object of the Society is the consideration of matters generally and specially appertaining to Dentistry. The affairs of the Society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator, and nine Councillors, these Councillors consisting of five senior and four junior students. The President is chosen from the past Students who have obtained their diploma of L.D.S.; the Vice-Presidents from past Students with a medical or dental qualification.

The entrance fee for ordinary members is half-a-crown, and there is an annual Subscription of the same amount.

Ordinary meetings are held at 7.30 p.m. on the second Monday in every month, from October to March inclusive during the winter Session, also meetings on the second Mondays in May and June during the Summer Session. The annual meeting for the election of officers and other business is held on the third Monday of January in each year.

Two Clinical meetings and one Mechanical meeting are held during the year.

Microscopical demonstrations are given for half an hour before every ordinary meeting.

Every member has the power of introducing two visitors, not being Students of the Hospital or School, to the meetings, with the consent of the President. Visitors are invited to take part in the discussion of the papers and clinical cases.

There is a Library and a Museum in connection with the Society, both being under the superintendence of the Curator.

The Society offers a prize, value £3 3s., at the end of each year, for the best paper read during that year.

STUDENTS' SOCIETY OF THE NATIONAL DENTAL HOSPITAL AND COLLEGE, GREAT PORTLAND STREET, W.

This Society, which was established March 16, 1878, was constituted for the encouragement and diffusion of knowledge in Dental Science, and for the promotion of intercourse among its Members: and all Students

of Dental Science are eligible for Membership. All candidates for Membership must be approved by the Council before being proposed to the Society for election. The Entrance Fee is 2s. 6d., and the Annual Subscription, 2s. 6d., to be paid in advance. The Ordinary Meetings of the Society are held on the first Friday in each month, from October to June, both inclusive. The meetings commence at 8 p.m. precisely. Each member may introduce two visitors, not being Students of the Hospital or College, but the same visitors may not be admitted more than three times during one Session. The President is DR. J. MAUGHAN, and the Secretary Mr. FRANK P. HAMILTON.

THE STUDENTS' SOCIETY OF THE VICTORIA DENTAL HOSPITAL OF MANCHESTER.

The object of the Society is the consideration of matters generally and specially appertaining to Dental Science, and for the promotion of intercourse amongst its members.

The affairs of the society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator and Librarian, Editor of Transactions, and four Students of the Hospital.

The General Meeting is held on the last Tuesday in every month from October to March inclusive and the Annual Meeting is held in May of each year.

Every member has the power of introducing two Visitors not being Students of the Hospital to a General meeting with the consent of the President.

The Library has recently received many additions, and a feature of the Meetings is Microscopical Research.

Members are permitted to attend meetings of the Manchester Odontological Society.

SCHOOL DENTISTS' SOCIETY.

The objects of this Society are (1) mutual assistance in promoting School Dentistry, and (2) the holding of meetings for the consideration of all subjects connected with the special work of School Dentists.

All present or retired School Dentists or Dental Surgeons of Children's Hospitals are eligible for election as members of the Society, subject to certain conditions.

The Annual General Meeting is held in London. There may be one or two other General Meetings in the course of the year, the times and places to be arranged by the Council.

President—Mr. Sidney Spokes. *Vice-President*—Mr. W. M. Fisher.

Treasurer—Mr. Vernon Knowles.

Council—Messrs. Norman Bennett, W. T. Elliott, A. E. Donagan, R. E. Nicholls.

Hon. Sec.—Mr. William Fisk, Street Lodge, Watford.

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1901-02.

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This Society meets at the Dental Hospital, and is for the consideration of matters generally and specially appertaining to Dental Surgery.

Candidates for membership must be approved by the Council before being proposed to the Society for election. Such proposals are posted during one meeting of the Society, and remain so posted until the next monthly meeting when the candidate is balloted for. No candidate is elected unless he have the votes of two-thirds of the members present. Nine to form a quorum.

Every member has the power of introducing two visitors, not being Students of the Hospital or School, to the evening meeting, with the consent of the President.

An ordinary meeting is held on the third Monday in every month, from October to March inclusive; the chair is taken at 6.30 p.m. The annual meeting for the election of officers and other business will be held in March, on the third Friday to receive the Treasurer's and Secretary's report.

BIRMINGHAM DENTAL STUDENTS' SOCIETY.

The object of the Society is for the reading and discussion of Papers for the furtherance of Dental Science amongst its Members.

Candidates for Membership must be proposed, seconded, and elected at one of the Fortnightly Meetings, or at the Annual Meeting.

Every Member shall with the consent of the President have the power of introducing a visitor to the meeting, who may take part in discussions, but is not entitled to vote on any business.

An ordinary meeting is held twice every month during the winter Session at Birmingham University, commencing at 7 p.m.

The Annual Meeting for the election of officers and other business, will be held in October next.

The President is G. F. CALE-MATTHEWS, Esq., L.D.S., President-Elect, H. P. JOSCELYNE, Esq., L.D.S.

All communications for the above Society should be addressed to F. VAUGHAN TOMES, W. BOWATER, Hon. Secs., at Birmingham University or the Dental Hospital, Birmingham.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.

This Society, instituted in July 1885, was established for the consideration of matters generally, and specially pertaining to Dental Science, the advancement and welfare of its members, and the facilitating of social intercourse among them. These objects being promoted by means of Papers, Debates, Clinics, Casual Communications, Social Gatherings, and by the various sections of the Athletic Club of the Society.

Ordinary meetings are held in the Lecture Room of the Dental Hospital, on the first Monday of each Month, from November to March inclusive, and the Annual Dinner is held as near the date of the Annual General Meeting as convenient.

Membership is open to all, who are, or have been, Students of the Edinburgh Dental School.

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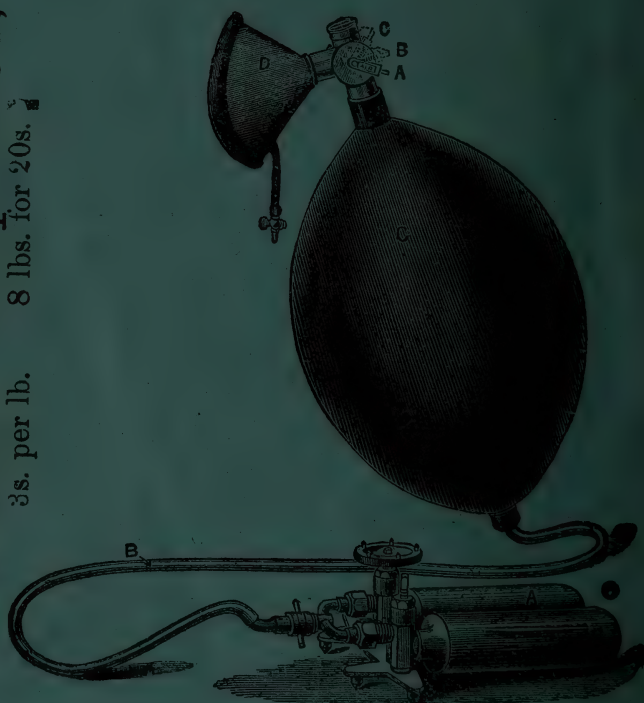
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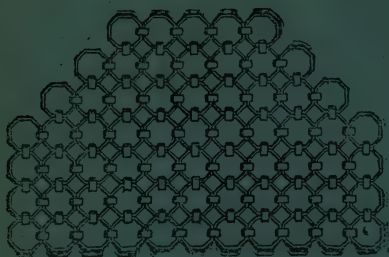
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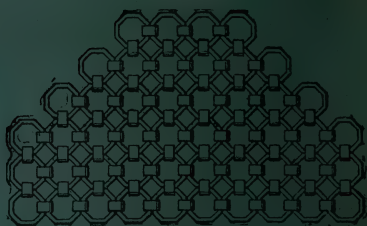
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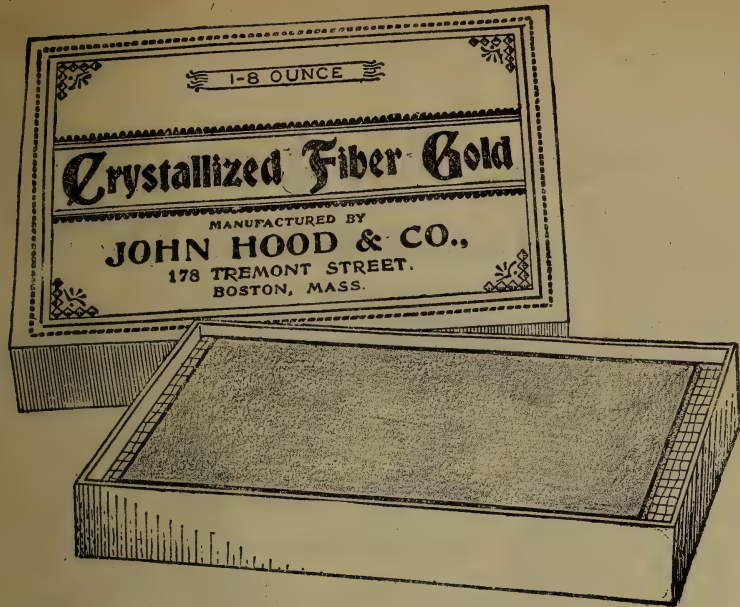
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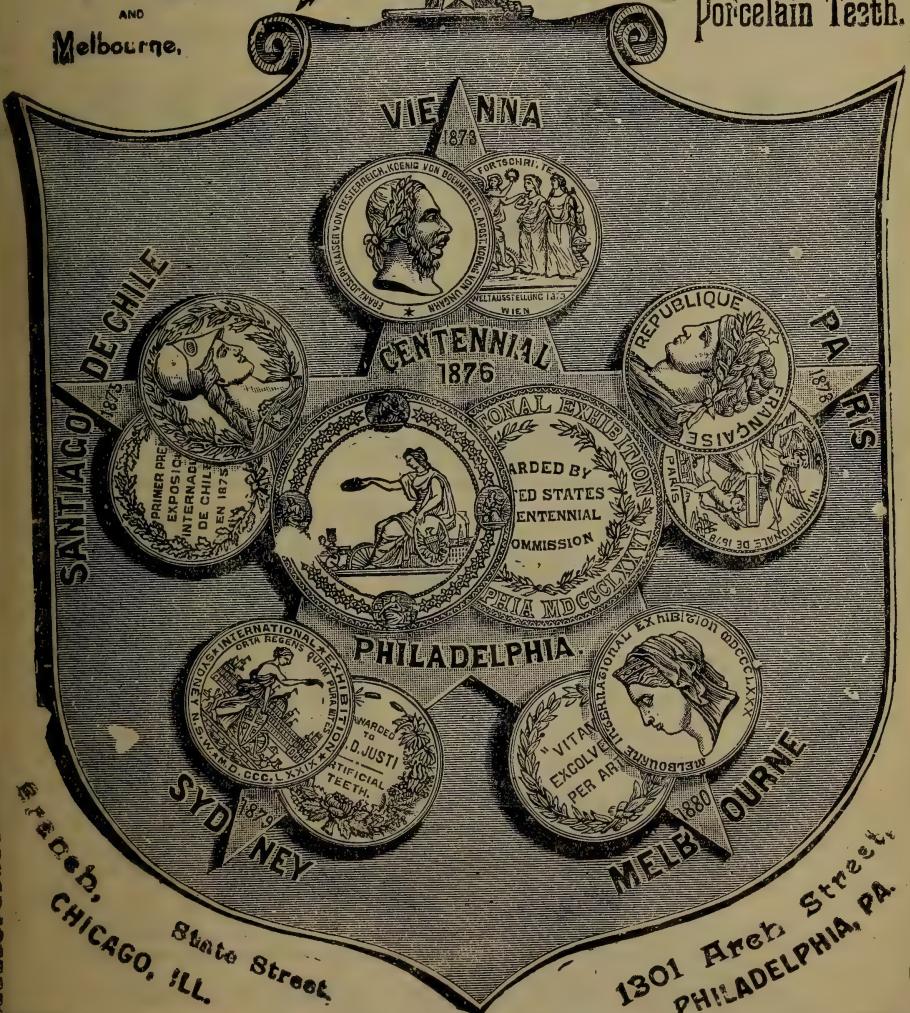
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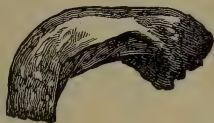
No. 802. LONDON, OCTOBER 1, 1901. Vol. XLIV.

THE MOVEMENTS OF THE MANDIBLE.

By T. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng.

(Continued from page 826.)

This structure which is described by recent writers as the interarticular fibro-cartilage is attached by its edges to the capsular ligament of the joint, and in front to the tendon of the external pterygoid muscle. It is roughly oval in form, broadest transversely, thickest posteriorly, and thicker at its circumference than at its centre, where it is sometimes perforated. It divides the joint into two cavities, each of which



Transverse Section of Interarticular Fibro-Cartilage
(after John Hunter).

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The Capsular Ligament is attached above to the circumference of the glenoid cavity and articular eminence, and below to the neck of the condyle. It is strengthened

externally by a strong band of fibres passing from the tubercle of the zygoma to the outer and posterior border of the neck of the condyle. This is usually described as the *External Lateral Ligament*.

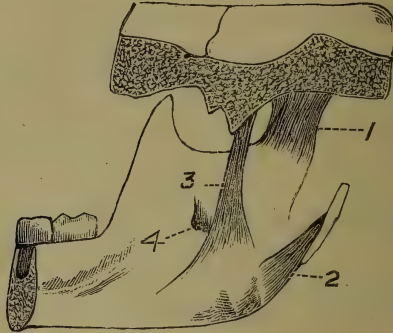


Diagram of Temporo-Mandibular Articulation (after Quain).

1. Capsular ligament. 2. Stylo-Mandibular ligament. 3. Internal-Lateral ligament. 4. Inferior dental foramen.

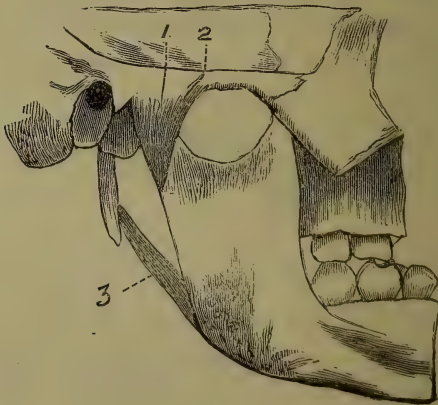


Diagram of Temporo-Mandibular Articulation (after Quain).

1. Outer part of Capsular ligament. 2. Thickened portion forming external lateral ligament. 3. Stylo-Maxillary ligament.

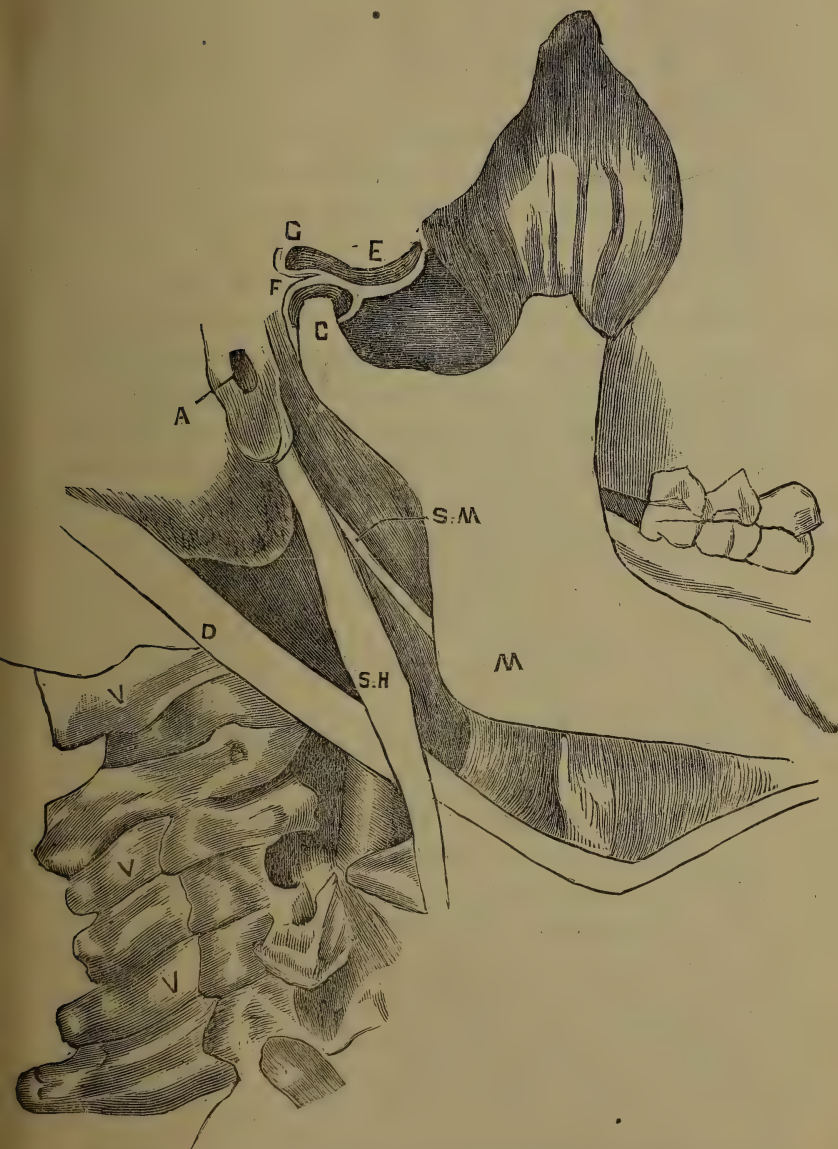


Diagram of Temporo-Mandibular Articulation (after John Hunter).

M. Mandible. C. Condyle. G. Glenoid cavity. E. Articular Eminence. F. Interarticular fibre cartilage with synovial membrane above and below. A. Meatus Auditorius. D. Digastric Muscle. S.H. Stylo-Hyoid. S.M. Stylo-Maxillary ligament. V.V. Vertebrae.

The *Internal Lateral Ligament* is quite distinct from the capsule of the joint and passes from the spine of the sphenoid bone to the inner border of the inferior dental foramen of the mandible.

The *Stylo-Maxillary* or *Stylo-Mandibular Ligament* extends from the apex of the styloid process of the temporal bone to the angle and posterior border of the ramus of the mandible.

The *Pterygo-Mandibular* or *Pterygo-Maxillary Ligament* is a narrow band of tendinous fibres which extends from the hamular process of the internal pterygoid plate to the posterior part of the mylo-hyoid ridge of the mandible. It is not usually described as one of the ligaments of the joint, but it most certainly becomes tense when the mouth is widely opened, and is quite as deserving of inclusion among the ligaments of the joint as the stylo-maxillary.

To be continued.

THE NATIONAL UNION OF TEACHERS.

By HAROLD J. PICKERING, L.D.S. Eng.

Mr. President, Gentlemen,— Before proceeding to formally propose the motion which is now against my name in the Agenda, a few explanatory remarks will perhaps be desirable, since there must be members here who are entirely unacquainted with the National Union of Teachers and our transactions with it. The National Union of Teachers or for short the N. U. T. is a body composed of the Elementary teachers in this country to the number of about 33,000. The organiza

* Read before the School Dentists'

tion is on somewhat similar lines to the British Dental Association, that is, the Union is subdivided into districts each of which possesses its own Branch. Every branch holds meetings on its own account during the year, and annually a Conference of the entire Union is convened at which all members can be present, and two special delegates can propose and second any motion which the branch desires brought under the notice of Conference. Last year a resolution on the necessity for periodical examination of children's teeth worded as follows was brought before the Great Yarmouth Conference by the Chippenham Branch.

"That Conference should favour the appointment of Public Dentists for the periodical examination of children's teeth, such appointments to be made on the same basis as the Public Vaccinators."

Our Society after some hesitation and negotiation approached the Executive of the N. U. T. with the object of getting a paper read on the subject prior to the resolution coming on. This was most desirable since the entire question is alas, but too unknown to the elementary teacher, and it was our desire to interest this great meeting so that the value and import of the motion should be the better appreciated. Mr. E. Gray, M.P., took the matter up, was interviewed by Mr. Fisk, our Secretary, and promised to do what could be done in the matter. At the same time it was pointed out that this was a "Supplementary" motion, and probably although on the Agenda with proposer's and seconder's names would not be reached in the limited time at their disposal. As a matter of fact something of this sort occurred and the business was dropped, never coming before Conference. I have now been definitely informed that there is no chance of the affair receiving any other fate this year unless it be supported by 50 members, it will then be moved as urgent and obtain precedence. Practically 50 men means 25

branches with two delegates apiece. I have been promised two from the branch in my district, and Mr. Tuck who has greatly interested himself over the business, has undertaken to move urgency if 24 more branches with their two men each will support him. He further tells me that Sheffield will most probably render valuable assistance since the N.U.T. Orphanage is there, Mr. Drabble being the dentist.

Now I do not think that I need dilate on the desirability of this matter of children's teeth and their condition being brought before so influential a body, since it must be obvious to all present. It is however very certain that the N.U.T. will not *seek* fresh work when there is always so much which it is bound to attend to, as the Agenda of last Conference alone will testify. It is our duty I think, as the body of men whose speciality it is, to direct their attention to what constitutes a grave danger to the welfare of the community. The medical profession who are taken as a pattern for us to follow ethically, did not hesitate to urge on the public the importance of the Tuberculosis question when once it had been fully grasped by that profession. As a result it has been received by the public with both confidence and enthusiasm. So will the teeth question when it is advanced as boldly as was the Consumption.

It is generally admitted that the teacher plays a very important part in the ultimate development of the child; there is no doubt but that this is indeed so. An evil exists of which he is ignorant, for I must remind you that there is no literature available on the question for the public. The evil can be partly combated by him by means of daily reiteration of certain simple facts and principles of Dental Hygiene. Further and far more than that, when the teachers themselves realize the power of this dental trouble as a deterrent factor in the success of their work, they will agitate for the appointment of more school dentists and we shall be in a better

position to cope with disease whose widespread and dire results are but too apparent to us, and at present to us alone. The *Public* requires to be informed of the bad condition of children's teeth, but the public must be educated up to the point when it will display just and proper appreciation of what we have to say. These teachers if once roused to the detrimental effect on their work of the ills arising from dental mischief will impress on the child and parent alike the paramount importance of dental supervision and attention. Gentlemen, the work is not one for us to avoid. As the School Dentists' Society we can accomplish great results, and I appeal that nothing stand for even one moment in the way of our bringing this to a successful issue.

One last word in conclusion, and I have done. In my resolution I have moved the formation of a Committee, because I am convinced that the business is too much for even so energetic a Secretary as ours to deal with single-handed. I should suggest that a small Committee be first appointed with power to add to its number, and that as we get more advanced in the work every member of the Society be personally asked to co-operate and assist. Let each Committee-man primarily constitute a centre and be himself responsible for at least four delegates, then let him select some dentists in the surrounding districts of the N.U.T. who will each in turn make himself responsible for another two. Let me remind you that although 25 be the minimum, the greater the number we can muster the better our prospects of success.

I beg, gentlemen, to move—

“ That having in view the importance of a proper representation to the teaching profession of the grave evils arising from the neglected state of school children's teeth, a Committee of this Society be appointed to secure an adequate attention to the subject at the Bristol Conference of the

National Union of Teachers to take place at Easter, 1902, and that such Committee be empowered to make all arrangements."

May I further suggest that the name of Mr. W. M. Fisher be the first selected for service on the Committee?

CONSCIENTIOUSNESS IN DENTAL OPERATIONS.

By WM. HIRSCHFELD, D.D.S., Paris, France.

Whilst a student of operative dentistry with Professor Sachs, of Breslau, I remember one particular remark of his, which impressed me more than a great many hours of lecturing. Whenever his patients complimented him upon his work he invariably replied "I cannot do any better than another dentist, only it may be that I am a trifle more conscientious than the average." This remark from a man like Professor Sachs, considered as one of the best operators in Europe, looked to me at that time—some twenty years ago—like exaggerated modesty on his part. But to-day, after years of practice, I understand these words to be only the simple truth, and that a good operator is almost entirely the result of conscientiousness in his work.—*Dental Cosmos*.

GUTTA-PERCHA is bleached in the following way: A solution of gutta-percha one part, and boiling benzine twenty parts, is shaken up with plaster, which is then allowed to settle. The supernatant liquid is then agitated with alcohol of 90 degrees.

British Journal of Dental Science.

LONDON, OCTOBER 1, 1901.

DENTISTS AT THE FRONT.

We continue to hear opinions expressed by dentists of the terrible havoc (caused by hard biscuit and bully beef) amongst the teeth of those returning from the war in South Africa. Some of these patients consider themselves as fortunate in having been able to get teeth extracted, and certainly if no better treatment was available they may be congratulated upon having been within reach of more or less skilfully applied forceps. But no one will deny that there has been a considerable amount of severe suffering from toothache apart from the troubles arising from inability to eat, and this coming often at a time when men were exhausted by long marches and exposed to severe climatic conditions, reduced them to a pitiable state indeed.

A great deal of dental trouble might have been avoided no doubt if soldiers could have had attention before going to the front, and although to our knowledge some of the volunteers who wished to go were refused on account of deficient and defective teeth, too many were allowed to pass. In some instances volunteer Surgeons were required to examine candidates on strict Army lines, but in many cases it was held that as the period of service would be only for twelve months (as it was then thought), some modification in such matters as teeth might be indulged in, and men who were absolutely dependent upon their artificial dentures remaining intact were allowed to go. Testimony as to the use (or rather non-

use) of artificial dentures is supplied in an interesting and amusing communication made to *The Pall Mall Gazette* by an ex-yeoman and which we publish on another page.

We noted a few months ago that the Government was sending out four dental Surgeons to South Africa and "Ex-Yeoman" has distributed them arithmetically. But there are other dentists at work by arrangement with the military authorities although not enough to materially shorten the time, prophesied by "Ex-yeoman," in which all those requiring treatment will be attended to. On the other hand one of the four dental surgeons has been "put out of action" by the destruction of the train in which he travelled up country. Although he was set at liberty by the Boers his outfit was lost, and he will not be of much service until he has been re-armed. Meanwhile the War Office has decided to send out still another dental Officer on the same terms as the first four—ranking as a civil surgeon. We still live in hope that there may be a very large increase in the appointments of dental surgeons for the Army. At least every base hospital should be able to deal with all the men sent down so that they might return to duty forthwith.

THE NATIONAL UNION OF TEACHERS.—We venture to draw attention to the communication, published in this issue, made by Mr. Harold Pickering at the last meeting of the School Dentists' Society. As will be seen elsewhere, that Society has formed a committee to carry out Mr. Pickering's suggestion that promises of support may be obtained from at least 25 Branches of the N.U.T. at the next Conference. It occurs to us that many of our readers might assist in securing such support in different parts of the country, and thus help to bring the question of School Children's teeth before such an important gathering of Teachers.

GENERAL HOSPITAL, LAUNCESTON.—According to the Report for 1900 presented to the Parliament of Tasmania,

there has been a large increase in the number of cases treated in the Dental Department—a greater number than in any previous year. This has taxed the time and energies of the Honorary Dentists somewhat, so that the appointment of an Assistant Dentist would be desirable, especially if conservative operations are to be carried out successfully. It is regrettable to notice a falling off in operations of this class. The removal of the Dental Surgery to the Out-Patient Department will be much more appreciated when satisfactory lighting is introduced, and hot and cold water laid on. The new instruments and materials provided have proved to be most useful. In the School of Dentistry the students have received a course of Clinical Instruction, whilst lectures and demonstrations have been given throughout the year by the Resident Medical Officers and Mr. A. Lucadon-Wells.

HORSE DENTISTRY.—According to a report from New York, which was considered of sufficient importance to be cabled, a dentist completed the filling of eleven teeth of Anna, an eight hundred pound saddle mare, belonging to Mrs. Jefferson Seligman, a society woman. The horse was treated just like a human being, the nerves being deadened with cocaine. Gold was used for the teeth that show and silver for the others. We are told that the horse could not eat before the operation, but now tackles its oats with relish. We suppose that the “human treatment” did not include the use of a Wilkerson Chair and a Fountain Spittoon. Rubber dam for a mare would of course be appropriate.

HOW TO CLEAN BURS.—Have a glass vessel, say a toy tumbler of about one ounce capacity, and keep half filled with saturated solution of washing soda, into which drop the burs after using. When they have soaked for an hour or two,—if left longer they do not rust—the debris is quickly removed with a nail brush. The solution is equally effective for

cleansing and renewing the cutting power of corundum points and wheels, they should not however be left in it more than three or four hours, as it softens the shellac used in their composition. After soaking, a nail brush and warm water brings back their cutting surface equal to new.—GEORGE PEDLEY.

ONE OF THE OLDEN TIME.—Dr. J. H. Coyle gives an interesting account of the kind of dentist who filled a tooth for him. His outfit usually consisted of a set of large octagonal handled pluggers, made of ivory, often with gold ferrules, steel excavators and files, with a mirror in a carved frame of pearl, studded with diamonds and rubies, all contained in a highly polished rosewood case. In fact, the patients were expected to be impressed as much with the display of his outfit, as with the skill and ability of the operator, just as it is often the case in this day, only it is the operator ? instead of the case ? While it was not universally the custom, a large number of these old practitioners still further awed their patients into silence and obedience by operating in a large flowing robe, highly coloured and figured, secured by a cord and tassels in which was woven strands of gold, around his body.

CAPE MEDICAL COUNCIL.—The annual report for 1906, just issued, shows that thirteen dentists applied for licenses to practise, three failing, however, to satisfy the Council's requirements as to previous training and qualifications. The question of advertising by dentists and other registered persons received the Council's most careful consideration, and in view of the powers delegated by the 13th Section of the Amendment Act, it was decided, to call upon all persons who were offending in this respect to desist immediately. A resolution was passed constituting advertising in a newspaper,

or by other similar agency, by any person whose name figures on the medical or dental register, to be improper and unprofessional conduct. As a result of its action the Council is pleased to be able to say that all advertisements have been withdrawn, and there has not as yet been any occasion to take further steps contemplated by the law. It was found necessary in only one case to take formal proceedings under Section 13 of the Amendment Act and to administer a caution.

DENTAL CURRICULUM IN AMERICA.—At the recent meetings in Milwaukee, the National Association of Dental Faculties increased the length of the college course from three years to four years of seven months each to begin with the session of 1903-4. The minimum tuition fee for all colleges will be 100 dollars beginning with the session of 1902-3, and all colleges are to begin teaching in the morning and continue through the day, and not begin in the afternoon and continue into the night as some colleges have done heretofore.

CONTINUOUS-GUM WORK.—As far back as 1728 the idea of replacing the lost dental organs and absorbed gums with gold plates covered with enamel was not unknown. Pierre Fauchard, who, in his book entitled "*Le Chirurgien-Dentiste, ou Traité des Dents*," published in Paris in 1728, says, "When the gums undergo total or partial absorption the gold or silver plate must be more or less large, in proportion to the loss of gum-tissue. The small eminences that the gums form in the intervals of every tooth and the half-contours that they form from one tooth to another should be represented. The loss of gum-tissue is supplied by well-imitated gums of enamel, for they have the true colour of natural gums."

Abstracts of British & Foreign Journals.

SOME FURTHER CASES OF ETHYL CHLORIDE NARCOSIS.

By W. J. McCARDIE, B.A., M.B., B.C. Cantab.,
Anæsthetist to the General and Dental Hospitals,
Birmingham.

(Continued from page 826).

Case 12.—*Opening and scraping a sinus &c, in the forearm.*—The patient was a thin and wiry man, about forty years of age, of sandy colour, and very abstemious and cheerful. His chest was not examined. He was placed in a semi-recumbent position on a couch and took quietly five cubic centimetres in two doses. Operation was then attempted in about two minutes, when brisk reflex and slight rigidity were present. Then movements of the arm and leg occurred, becoming rapidly more extensive and awkward; also much phonation and excitement. Endeavours to push the anæsthetic caused much greater muscular twisting movement and writhing of the body so that the patient would have rolled off the couch if he had not been restrained. The pupils at this stage were of moderate size and the eyeballs were a little prominent. The colour was heightened. On stopping the administration the condition gradually passed off. Before the patient quite knew where he was I again began to administer ethyl chloride, but the same phenomena appeared, and yet again at the third attempt, when the patient rolled off on to the floor. The more the drug was pressed the more unmanageable the patient became, so that operation was impossible. Then I changed to chloroform, thinking that probably he would show too much excitement for me to give him gas and ether conveniently. In a minute or two he began to move and to twist awkwardly about, but then quickly passed into a condition of incoherent volubility lasting for from three to four minutes, during which the operation was finished. He very quickly recovered and was none the worse. He felt nothing of the operation at all and only remembered vaguely a sentence uttered during his going off and seemed very

satisfied with the result. Thus, in this case, ethyl chloride beyond a very early analgesic stage caused excitement and irregular muscular contortive action, rendering administration impossible. There was no opisthotonos, which is said to be commonly associated with excitement. 20 cubic centimetres were used of which much was not inhaled.

Case 13. *Adenoids*. The patient was a tall, well-built, rather pale female, aged 18 or 19 years. She was placed in a recumbent position, with a prop in her mouth. About five cubic centimetres were sprayed on and the patient, being very nervous at first, breathed irregularly and lightly. In about half a minute she began to cry and to struggle violently, but being restrained she took about half a dozen deep breaths and then quickly became relaxed and flushed, breathed deeply and regularly, and in a few more breaths lost the conjunctival reflex, the pupils being of moderate size. After three or four more breaths Mason's gag was inserted and operation was leisurely done during an anæsthesia which was perfect and which lasted double the length of time that was needed—i.e., from one and a half to two minutes. Recovery was quick, the patient complaining afterwards of nothing but sore throat. There was no sickness in the operating theatre. The improvement and flush of colour continued not only during the operation and recovery but also when the patient walked from the theatre eight or ten minutes afterwards. There were no special after-effects of any kind and the patient went home in five and a half hours. The operator was extremely pleased with the long anæsthesia, the slight loss of blood, and the absence of congestion.

Case 14. *Adenoids*.—The patient, a girl, aged 13 years, was of the ordinary type. She had a high and narrow palate. A mouth-prop was inserted, when she breathed quietly but not deeply though regularly. She had very good colour all through. After from one minute to one and a half minutes, the pupils being contracted and the lid reflex being present, the operation was begun. The prop was removed and Mason's gag was put in, and after about 20 seconds the patient began to move, and then during the rest of the operation she struggled violently. Analgesia lasted about one minute. The girl had no recollection of the operation. In about ten minutes she walked back to bed. It was originally proposed to give this patient nitrous oxide. Seven cubic centimetres were used. There were no after-effects attributable to the anæsthetic.

Case 15. *Deflected nasal septum, adenoids, and tonsils.* The patient, a boy, aged 11 years, was of the ordinary type of child, who has adenoid growths with a good colour and a narrow chest. He was placed in a recumbent position. The operation on the nose was performed with the head in mid-line and the chin supported. A dose of two or three cubic centimetres was given at a time. The boy breathed quietly and there was a gradual disappearance of the reflex. The drug was pushed till the pupils were rather dilated; still there were regular breathing and good colour. The inhaler was then removed. There was perfect anæsthesia for over one and a half minutes—i.e., for as long a time as was needed by the operator—then some slight movement occurred, so the inhaler was reapplied and the drug again administered till the reflex was gone and the pupils were well contracted. The gag was inserted and the adenoids and the tonsils were removed without haste during a good anæsthesia of over one minute. Perfect recovery ensued. There had been no after-effects when I left. About eight or nine cubic centimetres were used, of which a good deal remained over after inhalation.

Case 16. *Adenoids and Tonsils.*—The patient, a girl, aged 10 years and nine months, was a delicate child, with a small, long face, narrow chest, and high palate. She was placed in the recumbent posture with the head in mid-line. Mason's gag was inserted in the corner of the mouth with its blades closed. At first the child cried a little; then she breathed freely. I administered a dose of about three cubic centimetres at a time until muscular relaxation occurred and the pupils were well contracted and the conjunctiva was insensitve. There was perfect anæsthesia of about two minutes, a longer period than was needed by the operator. The patient made a very good recovery, walking upstairs to bed in 10 minutes. Ten cubic centimetres were used, of which a great deal remained over on the inhaler. A better result than this could not have been wished for.

Case 17. *Excision of the left eye.*—The patient was a boy, aged 12 years, of the ordinary type, rather pale, and cheerful. He had just finished a good solid meal. The head was slightly raised on the pillow and about five cubic centimetres were sprayed on the inhaler. He breathed very freely and was deeply under anæsthesia in half a minute, the colour being heightened, the pupils contracted, and the colour rosy when the operation began. The inhaler was kept

on for about half a minute ; it was then removed being in the operator's way. There was good anæsthesia afterwards for about three quarters of a minute ; then the patient quickly began to recover, and he vomited much solid food. Before he recovered consciousness the inhaler was reapplied and by occasional inhalations anæsthesia was kept up to the end of the operation which lasted about two minutes longer. The removal of the eye was more difficult and took more time than usual. There was no evidence of shock on cutting the optic nerve and throughout there was no change from a rosy colour even during vomiting. The boy regained consciousness in half a minute after the administration had ended and then began to laugh. Then he vomited again easily. I am told that he was very pleased with himself and had no after-effects whatsoever.

Case 18. *Small operation inside the nose ; adenoids and tonsils.*—The patient was a tall woman, aged 35 years. She was placed sitting in an ordinary chair, with her head unsupported. She manifested a good deal of excitement during induction which lasted for three and a half minutes, but she was quiet during the nasal operation and removal of one tonsil : then there were much muscular excitement and spasm ending in opisthotonos, so that the patient rested on her heels and on her supported head. When she recovered she was placed in a semi-recumbent position on a couch, the blades of Mason's gag were inserted in her mouth, and after a very long (from four to five minutes) administration of ethyl chloride the adenoids and tonsil were removed. The patient looked rather pale afterwards. This was an unsatisfactory case.

Case 19.—*Adenoids.* The patient was a very anæmic girl, aged 19 years, with red hair. She was very excited. She was placed sitting in a chair with her head unsupported. She did not breathe well. I freely sprayed on ethyl chloride, but the conjunctival reflex was only dulled after five and a half minutes, when the operation was begun. The patient came round so quickly that it could not be completed, so she was placed in a semi-recumbent position and after a few more minutes' administration till the reflex was almost gone the operation was finished. She quickly recovered and went home in half an hour. No after-effects were noted. An unsatisfactory case.

Case 20.—*Slight adenoids.* The patient was a woman, aged 23 years. She was placed in a semi-recumbent position.

After an administration of two and a half minutes the conjunctival reflex was much dulled. There was fair operative anæsthesia of three quarters of a minute. In a few minutes the patient walked away. She felt rather sick after the operation, probably because she had swallowed some blood.

In the last three cases the conditions were altogether unfavourable, as no operating chair or table was at hand, while the patients were very nervous and excited.

Case 21.—*Adenoids*.—The patient, a sturdy girl, aged five years, was laid flat on the table. She cried at first but breathed well and was fully under in three-quarters of a minute. The eyeballs were turned inwards; the pupils were of moderate size; the sclerotic was insensitive. The patient was of very good colour and her muscles were lax. Mason's gag was introduced and the head was lowered over the end of the table: very good anæsthesia of about three-quarters of a minute was obtained. She made an excellent recovery.

Case 22. *Adenoids*.—The patient was a girl, aged 19 years, dark and pale. She exhibited very slight excitement during the induction which lasted for from one minute to one and a half minutes—i.e., till the conjunctival reflex was abolished and the pupils were well contracted. Mason's gag was inserted. The operative anæsthesia was from three quarters of a minute to one minute. There were no special after-effects.

Case 23. *Adenoids*.—The patient was a girl, aged 20 years, of ordinary physique. She was very nervous and cried rather at first; then she breathed regularly and in one and a half minutes was well under anæsthesia. The eyeballs were turned in. There was no reflex and very slight muscular rigidity. Mason's gag was inserted and a very good anæsthesia, lasting from one and a half to two minutes, was gained. The patient made an excellent recovery. The case showed a far better result than would have been obtained from nitrous oxide which was the alternative anæsthetic.

Case 24. *Iridectomy*.—The patient was a slightly-built boy, aged 11 years. His other eye was of glass. He cried a little at first, but was under anæsthesia in one and a half minutes. After three-quarters of a minute's anæsthesia the patient began to move, so the inhaler was reapplied, as the operation proved rather complicated, till the patient was quiet. It was again reapplied from time to time for the next few minutes to maintain anæsthesia. The patient made an excellent recovery and felt nothing.

Case 25. *Tonsils and adenoids*.—The patient was a pale, delicate, cheerful girl, aged 12 years. The heart was slightly enlarged and was excitable. The tonsils were very large. She was placed in a recumbent posture and Breuer's inhaler was applied. Two or three cubic centimeters were sprayed on at first and then as breathing became regular five cubic centimetres more and at the end again two or three cubic centimetres. Gradual and quiet induction of deep anæsthesia ensued, the pupils beginning to dilate and the conjunctiva being insensitive. The patient was of excellent colour; the breathing was regular and rather snoring and the muscles were lax. The mask was removed and Mason's gag was inserted. The tonsils and then the adenoids were removed deliberately, and at the end of the operation there was yet about half a minute's anæsthesia to spare. The patient then quickly vomited some blood and some curdled milk which had been given by mistake an hour previously. She walked back to bed in a few minutes and was again sick, bringing up more blood and milk. Ten cubic centimetres were used altogether, much of which remained over on the mask. Had nitrous oxide, the alternative drug, been given in this case and in the usual way, the congestion of the parts, and especially of the tonsils, would have embarrassed respiration before full anæsthesia had appeared. There would besides have been cyanosis, spasm, and inconvenient jactitation, and probably an anæsthesia of half a minute at most. Had nitrous oxide mixed with oxygen been administered, though those awkward symptoms would have been absent, the resulting anæsthesia would have been at the utmost only half as long as that gained by the use of ethyl chloride.

Case 26. *Scraping carious bone of the arm*.—The patient was a plump, anæmic girl, aged 19 years. Examination of the chest revealed nothing. She was placed in a recumbent posture. Two or three cubic centimetres were sprayed on at first and later five cubic centimetres. There was no excitement; the patient held her breath a little at first, but was unconscious in half a minute. She was then wheeled into the theatre and placed on the operating table. By this time deep anæsthesia as of chloroform had been induced. The pupils were contracted and the conjunctiva was insensitive. The colour was good, the breathing was regular, and the limbs were lax. After three minutes good operative anæsthesia the inhaler was removed before the insertion of the last two sutures. Recovery took place in about a minute, ending

with a very little retching. As the dressings were being applied the patient began to cry, but she felt no pain. On her return to the ward she vomited once slightly and then said that she felt well, but later in the afternoon she had some frontal headache. These after-effects were infinitely less than after gas and ether which she had had recently. Three and a half hours after the operation the patient had a good tea. About 10 cubic centimetres were used, with a remainder. Thus a good deep anæsthesia corresponding in depth to that of ether or chloroform was obtained in this case and I could easily have much prolonged it.

In all of the adenoid cases nitrous oxide, failing ethyl chloride, would have been administered, and the operator in most cases found much advantage in ethyl chloride over nitrous oxide as giving a much longer anæsthesia, usually lasting from three-quarters of a minute to two minutes, and causing no congestion while apparently having a distinctly stimulative action. In the recumbent position at any rate I think that the insertion of a mouth prop before beginning the administration rather hinders free breathing and upsets the patient. It is, I find, preferable to place the closed blades of a Mason's gag in the corner of the mouth and even better to insert the instrument when full anæsthesia has been induced. The drug should be given until the pupils are contracted or just beginning to dilate, and till the conjunctiva is insensitive and full muscular relaxation has occurred. Then the mouth can be easily opened and the operation proceeded with. Ethyl chloride has obviously great advantages over gas in these short adenoid operations where an extra minute or half a minute of anæsthesia makes all the difference to absolute success. On the average I use between five and ten cubic centimetres in these cases, much usually remaining over. It would seem that in many short ear and nose operations ethyl chloride might also be used with great advantage. In ear, nose, and throat work there is apparently no objection to administration in the sitting-up position, a great gain to the operator in that the usual relative position of surgeon and patient is maintained. In the operation for excision of the eye I rather feared that there might be evidence of shock on the section of the optic nerve, and was agreeably surprised to observe none. I hope to try ethyl chloride in operations for strabismus, and as I have given gas and oxygen successfully in several of these procedures I think that it will answer even better. In dental work nitrous oxide suffices for very short

cases when given in the ordinary way. For slightly longer cases ethyl chloride would be very advantageous, but for the longest cases of all—those, say, lasting for from three minutes to ten minutes—nitrous oxide given by the Coleman-Pater-son method answers every purpose since it can be continuously used during operation. I frequently thus administer nitrous oxide in hospital and private dental operations for periods of time between two and ten minutes, and am perfectly satisfied with my results in the great majority of cases. Seitz of Constance, a well-known dental surgeon and writer on dental subjects, in a recent work on dental narcosis strongly recommends ethyl chloride for dental operations instead of nitrous oxide or ether.

After-effects have in all my cases been slight or absent altogether.

A rather better inhaler in one or two respects than Breur's original one, though the same in principle, can now be obtained from Messrs. Allen and Hanbury's or from Messrs. Greeff. It is made in three sizes. In neither of them is the air-way quite free enough for a large-chested patient. Probably an Ormsby's ether inhaler of the pattern made with an air-inlet would serve very well for short inhalations at any rate. I think that, contrary to the custom of some administrators who "crowd" on the anæsthetic, dosage should be by gradually increasing additions of small quantities of the drug, say two or three cubic centimetres at a time, until anæsthesia is attained and then about the same amount given per minute will generally be enough to maintain narcosis. There is decidedly a disadvantage in pouring out at the first a full dose, pressing the inhaler very firmly on the face, and keeping it on in spite of crying and struggling till the patient is under. By this method over-dosage may occur and the patient will not forget the terror and feeling of suffocation during the induction of narcosis.

The case of death after operation under the influence of ethyl chloride in no way shakes my present opinion of its value as a narcotic and I have since then taken every opportunity of trying it for the shorter surgical operations. Finally, as far as I can now judge, ethyl chloride might advantageously be used instead of nitrous oxide mixed with oxygen or nitrous oxide alone for many of the shorter operations, and more especially in the case of less vigorous patients.—*Lancet*.

THE TEETH OF THE ARMY.

BY AN EX-YEOMAN.

AFTER twenty-one months' fighting, four dental surgeons have been sent to South Africa to attend to the teeth of the Army. Thus does the War Office put forth stupendous efforts to atone for the past ineptitude.

In an army of a quarter of a million men, these four surgeons should be kept tolerably busy. No soldier who has campaigned six months in Africa, will, if he be wise, neglect a chance of having his teeth examined. Each surgeon, therefore, will have a clientele of 62,500 officers and men. Assuming that on every day of the week (including Sundays) thirty men are treated by each dentist, the teeth of the Army will have been overhauled, and the work of filing, excavating, and filling completed in something over sixty-nine months. It should console a man on active service suffering to-day from toothache in a precious molar, which he can ill afford to lose, to know that he will not be troubled with the agonizing pain later than April, 1907.

In the unequal struggle between trek ox and biscuit on the one hand, and mere human teeth on the other, not five per cent. of the men of my company came through scatheless. In many cases the damage was slight; in others, where the teeth were naturally weak and brittle, the mischief done was irreparable. Even with an average set, straining on an average biscuit, you never felt quite certain which would be the first to go—your teeth or your biscuit.

One trooper in my section lost four of his most useful grinders in a single week's march from Abraham's Kraal to Ver River. He would point to a row of broken stumps standing as monuments to the invulnerability of the all-conquering biscuit. To one of these ill-fated grinders the plate which carried his artificial teeth was fixed, so that, for all purposes of chewing his entire mouth was put out of action. By soaking biscuits in water and drinking the thin soup made by boiling trek ox, he lasted till we made Winburg. There he speedily went down to enteric.

The doctor attached to our batalion, a man of splendid valour, would extract teeth. There his dental duties ended.

He did no filing, no filling. In the General Hospitals, and in the Yoemanry Hospital at Pretoria, extraction was the only course open to those who suffered. On the march every man was his own dentist. Exercising that resourcefulness which necessity breeds, soldiers would plug cavities in aching teeth with tobacco, cayenne pepper, rubber (scraped from waterproof sheets), anything calculated to cover or kill an exposed throbbing nerve. Such treatment rarely proved effective. After tossing through one, or perhaps two, sleepless nights, the swollen-faced victim would parade with the sick, take the operating chair (an empty biscuit box), and submit to the doctor's hug.

While my company was camped at a certain town in the Orange River, an American dentist had more work than he could cope with. He was, unfortunately, a drunkard, and the envy of the severely sober Tommies, who could only wish they "'ad only 'arf his complaint." He was without gas and gold filling; yet he would not touch a tooth under a guinea. His practice might have proved less lucrative had his first client not protested so strongly against being operated upon without gas that the dentist gave him a glass of brandy to produce Dutch courage. In a town where intoxicating drink could not be bought for untold gold, the American was a most useful man to know. A full corporal who fainted judiciously three times while having a back tooth bored and filled, was brought round with three "tots" of brandy. But he killed the goose. Next day, the waiting-room being crowded with troopers prepared to faint at a moment's notice, a disappointed soldier from the operating room, announced that the dentist, though so drunk that he had in error attempted to excavate the cusp of a sound tooth, had no more brandy in the house.

At the time the original Yoemanry were enrolled candidates' teeth were not closely examined. Consequently there were in my company men with artificial teeth and men with so few sound teeth that in peace times they would have been at once rejected, whatever their other fighting qualifications. Artificial teeth held their own with biscuit for a time, and then succumbed. But in another respect they came as a boon and a blessing to certain of their unscrupulous owners. As the dreary months of trekking dragged on, men, their energies jaded, their constitutions run down, their limbs splashed with veld sores, looked for any loophole of escape from the martial yoke. Two troopers, to my knowledge, found the loophole by hiding their false teeth and explaining

to the regimental doctor that they were unable to eat their food. There was nothing for it but to pack the malingerers into hospital at Pretoria, and send them thence down country to the base, thence to England.

The colonel of a nameless battalion, moved to pity by the sight of a sergeant's toothless jaws, sent him to the only competent dentist in Pretoria to have an artificial set fitted. Before the work was finished the dentist—a German—contracted enteric and died. The sergeant was drafted to Cape Town, thence home; and on the voyage he never missed a solid meal. Three times a day he smuggled his old set of false teeth from his pocket into his mouth, and as each meal ended he deftly transformed himself into a gummy object of commiseration.

This latest herculean effort of the War Office to meet the necessities of the Army will have some effect—the same effect which an infuriated farmer would produce by firing a rifle into a swarm of locusts to protect his crops from their depredations. The hordes of dentists attracted from America, Europe, and Australia to the coast towns of South Africa will continue to thrive on the teeth of Army officers, and Tommy must go on choosing between a swollen jaw and the regimental doctor's rusty forceps.

The way of the malingerer could be made a lot harder, and the way of the honest, well-bursed fighting-man a lot more endurable, were some really effective measures taken to care for the teeth of the Army. Four smart dentists at each of the base hospitals could cope with the more urgent cases, and stem the flowing stream of home-bound seasoned fighting-men, who might plead reasonably enough, that they cannot serve their country since their country will not serve them.—*The Pall Mall Gazette*.

WHAT ARE THE MARKS OF A BITE?

The question of how a wound has been inflicted is often a crucial point in medico-legal cases. The nature of the injury often affords satisfactory evidence as to the way in which it has been caused, as, for instance, when grains of powder are

embedded around the entry perforation of a bullet. At a glance it is possible, as a rule, to say whether or not the damage has been caused by a bite. The double semi-circular row of lacerations may be aptly compared to the indented marks left by an attempted bite from a hard, green apple. That there are fallacies about circumstantial evidence of the kind, however, is made abundantly clear by a recent police-court case in London. Two medical men attached to a general hospital testified that the injuries sustained by a woman were due to a bite. The chief point was the indented wounds were on both the back and the palm of the hand, and could have been caused only by pressure on both surfaces alike. Had the wounds been caused by a blow with a jagged instrument, or a stick studded with spikes or nails, only one surface would have been indented. On the other side a medical man swore positively that the wound was not due to a bite. While he admitted that the marks were something like teeth-marks in their grouping, yet from their position the teeth could not have caused them unless the assailant had the whole hand in his mouth, because of the position of the convexity of the arc. Moreover, the two series of marks did not correspond. No answer to these objections was forthcoming from the first-mentioned witnesses, and the magistrate came to the conclusion that an assault had been committed, without passing an opinion upon the conflicting medical testimony.—*The Medical Press*.

EMPHYEMA OF THE ANTRUM OF HIGHMORE IN INFANTS.

The antrum of Highmore attracts the interest of specialists in many different lines of medical science and practice. Anatomists, surgeons, dentists, ophthalmologists, rhinologists, physicians in fever practice, and others. Anatomical descriptions of its formation seem to leave much to be desired ; it appears, however, to be pretty well established that the cavity of the antrum exists at a much earlier date than was at one time believed. It is not easy to understand the difficulty felt by some in accepting the diagnosis in most

of the published cases of empyema of the antrum in young infants. There have been but few such cases published, and it has been held by Avellis that the condition was really one of necrosis of the superior maxillary bone. Dr. Emil Mayer, of New York, in the *Medical Record* for August 10th, records a case which came under his care, of a female child, aged $2\frac{1}{2}$ years, which was brought to him in consequence of a fistulous opening having developed in the right cheek from which pus exuded. An eversion of the lower lid and fœtor from the nostril were also present. The previous history was to the effect that the child six weeks before had been attacked with scarlet fever, with pneumonia, and, shortly afterwards, diphtheria, principally nasal, had appeared. Careful examination led Dr. Mayer to the conclusion that the condition present was empyema of the antrum of Highmore. A case of Dr. Platts, of Baltimore, is given *in extenso*, in which the infant was only five months old. Pus was discharged, not only through a sinus on the cheek below the orbital margin, but also through a sinus opening on the gum "in the region of the second molar tooth," from which a rudimentary tooth was removed. Infection with gonorrhœal pus was believed to have taken place during birth, but why this opinion was formed does not seem clear from the report. The first case on record is more remarkable still. It was that of an infant, aged two weeks, reported by G. A. Rees in 1847. The eyeball was protruded to such an extent that the lids could not be closed; the palate was depressed and the cheek prominent. One of the rudimentary molar teeth being apparent was extracted, and a director passed easily into the antrum and allowed the escape of a "considerable quantity of thick matter." On the next day an abscess near the inner canthus was opened, and water injected into the antrum from below came out on the cheek. Rees believed that the pressure of the arch of the pubes on the cheek caused the mischief. Other cases are quoted by Dr. Mayer and commented on, and points in dispute are ably discussed. Perhaps most interesting of all is the consideration of the infection of the antrum in infectious diseases. From the evidence produced of the pathological conditions frequently found in the antra in fatal cases it is reasonable to believe that infection commonly occurs also in cases which recover.—*The Medical Press*.

PULP MUMMIFICATION.

By Dr. LAURITZ BOSGARD, Cooma, N.S.W.

The subject of pulp mummification having recently received considerable attention by the profession, I desire to state my experience in this mode of treatment. I have used the mummifying paste prescribed by Dr. Soderberg, and published in a previous number of *Items of Interest* since 1896, in several hundred cases and upon patients of all ages and temperaments, so far without one single failure. In a few cases I have removed fillings inserted over mummified pulps and have found the canals in a perfectly aseptic condition, the canal brooch upon removal smelling sweetly of thymol. At first I only used this method on molar teeth, always extirpating the devitalized pulps of incisors, cuspids and bicuspsids, but recently I have extended its use to all teeth, believing this treatment to be more satisfactory and less dangerous as regards the probability of abscesses forming than the removal of the pulp and subsequent insertion of a root filling.

As the subject has already been widely discussed, I do not desire to offer any remarks upon its merits or otherwise, but wish merely to state that I have no sympathy with those who object to this treatment on the ground that, being so much easier than pulp extirpation and root filling, it may lead to slovenly work. If the mummification process is as satisfactory in its result as any more complicated and difficult process, then surely we owe it to our patients to adopt the method which will give them the least pain and discomfort. There can be no doubt that it requires more skill and occupies more time to properly remove the whole of the pulp and to fill the canals to the apex than merely to mummify the pulp, and therefore, by all means let the former method be taught in all dental schools; but the dentist in practice would hardly be justified in wasting his own and his patients' time and adding even the slightest unnecessary pain merely to exhibit his skill.

But there is one danger which I admit exists in this treatment, namely, that it may lead to unnecessary devitaliza-

tion of pulps. The ease with which this operation can be performed, and the certainty of absolute relief from toothache which will follow, may tempt many to destroy pulps which could, and should, be saved by capping. Whatever may be the opinion of the individual dentist as to the value of the dental pulp in adult life, I suppose that at least the majority of them would consider it wrong to unnecessarily destroy the vitality of a pulp.

One most valuable feature in the mummification process is the saving of tooth structure which can be effected. There is no necessity to cut away good enamel and dentine in order to gain access to the root canals, which would be necessary in the thorough removal of the pulp and efficient filling of the canals. Only quite recently one of my patients presented himself with buccal cavities in the second and third upper molars, the orifices being quite small, but the decay having reached the pulps causing sufficient pulpitis to call for the destruction of both pulps. In the orthodox manner I would, in order to save those teeth, have been obliged to drill away a considerable portion of the crowns to reach the canals, whereas, by the aid of the mummifying paste I merely opened up the pulp cavities, removed the contents of the main chamber, leaving canals untouched, and was thus enabled to finish the operation without depriving my patient of any undecayed tooth material whatever.

No discolouration of any tooth thus treated by me has ever occurred.

The pain which in some cases follows this operation, owing to the contraction of the pulp, I find so slight as to hardly merit any consideration.—*Items of Interest.*

NOTES ON SCHOOL DENTAL HYGIENE.

By Dr. L. GUILLERMIN, Geneva.

It seems to us that dental hygiene is sufficiently defined and important to warrant its subdivision into several principal groups. We can subdivide it in the following way:

General dental hygiene, comprising ethnology, the con-

stitution of the soil, general buccal and dental treatment, dentrifrices, etc.

Alimentary dental hygiene, comprising the composition of the water and the influence of food and beverages on the formation and conservation of the teeth.

Infantile dental hygiene (from birth to the seventh year).

School, military, and hospital dental hygiene.

Dental hygiene of the noxious trades, confectionery, manufacture of soda, of acids ; also lead, mercury, phosphorous, alcohol, and tobacco poisonings.

Diathetic dental hygiene,—gout, diabetes, rhachitis, and during such diseases as fevers, anemia, dyspepsia, locomotor ataxia, etc.

Lastly, international dental hygiene : Organization of a permanent general council grouping the ethnological information, favouring the creation of clinics, and working to obtain the aid of the public authorities.

In this paper we will discuss *scholastic dental hygiene*. Dental hygiene in the schools refers to pupils from the age of eight to that of eighteen. It is the time of greatest general development ; of the development of the nervous system ; of the evolution of the genital organs. It is a period of special nutrition, and it is necessary that this nutrition should not be deteriorated, so as not to provoke by its derangement the development of acquired or hereditary predispositions (tuberculosis, scrofula, rhachitis). During this period the mouth should be properly cared for, either for the immediate treatment of caries, for the prevention of threatened irregularities, or for the establishing of a general treatment corresponding to the buccal semeiology.

In this connection, it may not be amiss to give you my opinion regarding the effects which the overworking of children has upon dentition. Up to the age of twelve or thirteen years, at least in well-ordered schools, overwork does not seem to be an aggravating cause of dental caries. The cavities present at this age are rather caused by faulty nutrition or else are the result of hereditary tendency, as, in fact, dental caries can be considered as an hereditary disease in the same way as tuberculosis, scrofula, arthritis, with the difference that in those diseases the specificity may not develop ; the histological formation does not reveal anything abnormal, while in dental heredity the tooth is from the beginning, histologically, speaking, of inferior variety.

These are the principal causes of caries until the age of

thirteen or fourteen, after which time college work is also accountable. Many dentists have observed it ; Chrétien, Dr. Harlan, Dr. Galippe, and others , it cannot be otherwise. A great hygienist, Dr. Ferrière, of Geneva, has demonstrated the injurious influence of overwork over general health. Fonsagrives says that humanity is disappearing through the brain, and adds that it can be saved through the muscles, but that no time should be lost in doing it. Nesteroff, a Russian hygienist, has observed a great number of cases of scholastic neurosis, which is the beginning of neurasthenia of adults. There are many young pupils whose faces show the signs of fatigue and emaciation ; the nutrition in such cases is insufficient, due to the overcrowded character of the programmes of the schools. If their mouths are examined, very often it will be found that their teeth are attacked by progressive soft caries. This proves that the organism is lacking in phosphates, which is almost a pathognomonic sign of overwork. These caries are the cause of faulty mastication ; insalivation is incomplete, and dyspepsia, with its sequelæ of physiological miseries sets in.

Many times in cases of this nature we have advised the parents to withdraw their children from study and take them to the country, and in the course of six months or a year we have witnessed true recoveries. But it is not in our power to modify those programmes, which are the result of modern demands. England is the only country that has combined school work and hygiene. It is a judicious example that the other nations should follow.

From what we have said it follows that it is absolutely necessary to take serious care of the teeth, of these organs whose integrity is so important for good nutrition. How can we obtain this result ? Principally by the organization of dental inspections for the schools. First, because we shall inevitably find children who, through pusillanimity, indifference, or lack of funds, escape our beneficent action ; and also because we shall be able to combine our observations with those of the inspecting physician, and from these combined efforts a great deal of good for the children would result. The physician has neither the time nor the means of examining their mouths.

The study of the buccal cavity reveals many morbid states of the organism, without speaking of the aspect of certain caries which often are concomitant with ignored osseous lesions, and of retarded dentition. We can often diagnose

adenoid tumours from the shape of the palate; we can observe the absence of nasal breathing, erosions, certain odours *sui generis*, specific spots of purpura, leucoplakia, the tendency to abscesses, the paleness of the gums, and all the numerous signs signs of buccal semeiology. In the majority of countries medical inspections are organized, but very seldom dental services; and wherever these services exist, they are exclusively of a private character.

It is our opinion that dental services, because of their importance, should be officially organized in the same way as the medical services are, especially when one considers the double advantage that the children would derive therefrom. The dentist would communicate to the physician the result of his visits, and would attract his attention toward all the semeiological buccal signs that he would observe. But, unfortunately, governments generally show indifference in this respect.

Dr. Guillermin then described the way in which voluntary dental inspections were made in Geneva. These had to be abandoned because of the great indifference shown by the authorities. The results of these visits were nearly the same as those obtained by previous observers. Caries predominated slightly in girls. Many Italians attend the schools of Geneva, and among them he observed a smaller percentage of caries. Forty per cent. of the mouths did not contain any caries, as compared with twenty-eight per cent. among the Swiss pupils. Ninety per cent. had never used the tooth-brush; five and one-half per cent. presented more or less marked erosions, and only three and three-quarters per cent. of the children that were examined were attended by a dentist.—*Dental Cosmos*.

SOLDERING MADE EASY.

By H. W. NORTHROP, D.D.S., New York.

In the earlier days of dentistry soldering was one of the first and chief attainments of the mechanic, but after the arrival of vulcanite, soldering was less needed and by many not deemed a necessary part of their education, until later

crownwork demanded more attention. The most interesting part of my earlier teachings was watching my preceptor blowing away with his long mouth blowpipe and alcohol lamp, soon seeing the small lumps of gold solder spread out so nicely upon the plate just where it was wanted. Many are using the same means at the present day, but the gas blowpipe is doing most of the work, except in suburban localities where gas is not yet introduced. The gasoline blowpipe outfit affords a splendid substitute in this case.

Selection of blowpipe. In the selection of a blowpipe, it would be useless for me to name any particular kind as the best, for many good ones are in the market, and you can use almost anything when thoroughly accustomed to the working of it, but bear in mind these few hints : see that there is perfect combustion of the gas, from the very finest blue point flame to the full blazing flame. Do not allow any flow of gas to burn at the point, that is not overcome by the force of air from the bellows. The movement of the regulating valve is also important ; see that the mechanism is simple, easy and quick, doing its work with the least possible movement of the fingers. A blowpipe that is small, light and graceful in the hand is far preferable to some that are so heavy and thick at the point as to almost tire the arm in using it, and brings your hand so far away from your work. I would never advise anyone to get one of those stationary affairs that sit on the table, expecting the work to move up to it and dance about while being soldered, for your work must lay quiet to avoid danger of dropping and breaking ; and here it is a good time to recommend you all to learn to handle the blowpipe with the left hand, leaving the right to handle solder, borax, etc. The blowpipe which has done all my work for the past few years is only the tip of a once simple affair, and the valve action is just squeezing the rubber tubing which supplies the gas.

The bellows. There is little to select in the matter of bellows, except that style which rests on the floor with the air-bag at the top, in preference to those that stand upon legs. It cannot tip over and the position is not quite so tiresome to the leg. The bellows is made in three sizes, small, medium, and large. The medium is about the best for general work. I received a circular not long ago of a new invention in the bellows line, it being upon the plan of a bicycle pump. It looked practical and simple, but from experience I cannot say anything about it.

Investing Materials. Next in the line of our subject comes the investing and necessary materials. The three principle ones are pumice, marble dust and asbestos; sand also is sometimes used. Of course each is mixed with plaster from one-third to one-half as the case may require. Pumice I care very little for, as it does not make a strong investment and skinks too much during the heating. I prefer and use mostly the marble dust; not the fine white dust, but of a coarse nature. It makes a firm, solid investment, one that does not shrink and very seldom cracks when mixed rightly. At the present time the supply which I am using seems to almost fuse or bake while heating, often making it difficult to break away from around the soldered work when cold. Asbestos also has many good qualities, and is considered one of the standbys for fire resisting power. There is nothing better for cases which require little trimming or cutting after hardening, like gold plates or very large cases of bridgework. The fibre of asbestos holds your investment very firmly together, and I would recommend its use in most large cases. The only particular advantage which marble dust has over it is in trimming and cutting away to expose the minute corners and points, where the solder is to run; the fibre of the asbestos, of course, will not cut, but is apt to draw out sometimes, exposing a point of porcelain or loosening some part of your work.

Method of Investing. When your work is set up ready for the investment, trim your model away, leaving just enough to hold your fittings and teeth waxed in place. Roughen the plaster and place it in water for a few moments, so it will get thoroughly wet, thereby preventing absorption of the water from the new mixture. Perhaps a word of explanation may be necessary to have the above fully understood; in all of my bridgework I make and adjust my attachments to the teeth before taking the impression. With the attachments in place in the impression, the model, to be made of two thirds plaster to one of marble dust, is poured, and that part of the model carrying the attachments is invested with the teeth. But the investment should be about equal parts of plaster and marble dust for this part of the operation. When well hardened, remove all wax by slowly pouring boiling water on to it, until every particle is washed away. Do not boil the mass in water, as is customary with vulcanite cases, as it weakens the plaster unnecessarily. After removal of the wax, which leaves exposed the metal, all surplus plaster needs cutting

away so as to leave as much of the metal exposed to the flame of the blowpipe as is possible. Never attempt, or think you can solder successfully by forcing the flame down into a hole, for it is one of the most difficult things to do, and rarely brings the work out perfect; the more play and freedom your flame has, the better will be the results. Be careful to have all portions of your porcelain covered; also fill all crevices between the porcelains even with the surface of the backing. Wax will sometimes get between the porcelain while setting up, and if the crevices are allowed to remain after the wax is boiled out, borax getting in will often crack your teeth.

Heating the Case. When all these little points have been carefully attended to, put your case to heat up on any kind of a gas stove, burner or heater, being sure your flame does not strike your teeth or backing directly; it must first heat up the investment, letting that in turn heat your porcelains and metal. There is no harm whatever in heating a case rapidly if the process is uniform. A wet investment causes less liability in checking teeth than a dry one. This idea is carried to the extent of putting an invested case which has been drying over night into water, to absorb as much moisture as it will, before putting over the fire to heat. Thus, the idea which formerly prevailed, that it was necessary to dry out a case before heating it up, is a useless waste of time.

If you have time to allow your case to thoroughly heat before commencing to solder, watch the gold exposed until red hot, then apply the blowpipe with a large generous flame all over the case for a good heating up of the surface which is to be covered with solder. If convenient, allow the case to remain on the heating stove while soldering, which will save work with the blowpipe, keep the case heated and also avoid checked teeth.

Method of Soldering. Have your solder cut into pieces of convenient size in an old tin box lid or equally hard substance, so that the hot pliers will not gather and conduct any refuse to bother you later. It is not necessary to use wet borax, but if you desire to do so, put it on before the case is heated, do not add it in that form afterward. When thoroughly heated up, commence your work at one end; lay on a piece or two of solder, sprinkle on a pinch of powdered borax; and now, remember that at this stage begins the good or poorly soldered case. Be sure that your first piece of solder flows before you put on a second; do not try to force

it with a small flame, as this time a large flame will heat just as well, and not burn your gold; your metal must be hot enough to soften and flow your solder. Also, do not expect your first piece to complete the job; it will flow to the hottest point (which may not be where you expect it to lay); the second may do likewise; the third and fourth will form sufficient substance to unite all together and flow like water into every little crevice and corner. Then gradually put on piece after piece, with an occasional addition of borax. As you get sufficient solder at the starting point, gradually shift the position of your case, so as to work toward the other end; but always finish your soldering at one point before leaving it to move along. Thus keep moving gradually along the case until you finish your work at the opposite point from where you started. Never start at both ends and finish in the middle.

The Teaser. If you wish to avoid pit holes in your solder when completed, be sure to keep your borax floating to the top of the melted metal, as the little pits are formed by particles of borax confined under each additional piece of solder; so while working have conveniently handy and use a small pointed instrument to stir up the solder and displace such particles of borax as would otherwise remain confined within the mass. A steel instrument is not the best for this purpose. I use an instrument of my own, which has been dubbed by my laboratory fraternity "Our Teaser." The point is platinum wire about gauge 17, two inches long, soldered to German silver wire about four inches long, with a handle on the end; the platinum point does not affect the solder like the steel. But to return to the solder, when you desire additional thickness at certain points and fear displacing what you have already done, put on small pieces, draw down the flame to the blue point, with just enough force of air to have perfect Bunsen flame but no noise, then use your "teaser" to spread and draw the solder to just the desired point, and you find the other has not moved a particle. You will also find the "teaser" useful in coaxing solder to such points or surfaces to which it would not otherwise flow, because the heat would keep it near the centre of the larger mass of metal.

Now, after all this explanation, please keep this fresh in your mind. If you want solder to flow, have the metal of your case *hot* enough to cause it to soften and spread from contact with the heated surface. If your solder does not flow,

but balls up, don't blame it, as your case is cold. Never try to push your solder into a hole ; you can coax it, but never push it. Heat and borax will do all your work for you.

Burned Backings. A word or two about burning bands and backings : it wastes a great deal of time and patience and is not necessary. It is generally done with the small sharp flame which you are using to do the work a large flame should do. Also, when the solder is once flowed to a band leave it there ; if not satisfactory, use another piece, even if it has to be ground off later. Solder once flowed will not move as easily the second time, and if attempted is liable to take part of your band with it. If you desire to move a surplus of solder to another position, with no danger of burning bands, keep the hot point a little in advance of the metal, and you will see the metal follow right along after it.

Coolings. After the soldering is completed, a uniform cooling is as essential in prevention of checked porcelains as was the heating up. The best and safest way yet known is to bury immediately in a can of marble dust or plaster, leaving it there to cool. It is claimed by some that rapid cooling can be done by wrapping the case in a piece of cloth and gently dipping in boiling water. I have done this, in experiment, successfully, but never had the courage to utilize the plan on a large case when the patient was waiting and in a hurry. The marble dust is safe and far better than cooling with exposure to the air.

When cool carefully break away the surrounding investment and look for checks. If you see any checks or any facings drop off, you will be sorry you ever opened it, and will say, "Northrop was just talking when he said he never checked teeth." But, if everything has come out satisfactorily, you will smile and think dentistry is rather enjoyable after all.

The case is then placed in a jar of muriatic acid, remaining there until brightened and ready for finishing and polishing, about which I could fill as many more pages, but will refrain from burdening you further this time.—*Items of Interest.*

Only as a great exception have we to deal with people who absolutely will not stand anything in the way of pain. In these desperate cases a great deal can be done for the better by reasonable explanation, and only old age or a weak, run-down constitution should be the excuse for superficial work.
— *Dr. Herschfeld.*

COMBINATIONS OF FILLING MATERIALS TO OVERCOME CERTAIN DIFFICULTIES.

By OTTO E. INGLIS, D.D.S.

It has been said that dentistry is two-thirds mechanics and one-third common sense, but it would be more in keeping with the present spirit of the profession to say that it is a mixture of equal parts of mechanics and science, the former directed and controlled by the latter.

It is obvious that any attempt to apply the principles of mechanics must be directed by a knowledge of the said principles, or be a failure. Likewise the intelligent utilization of filling materials must be preceded by an appreciation of their physical and therapeutic values.

It is not intended to weary the reader with a lengthy recital of all the attributes of each filling material, but a brief notice of each is necessary.

Gold, generally acceptable as to colour, possesses the physical qualities of perfect and permanent adaptation to all accessible cavities with strong walls. Its resistance to the stress of mastication renders it highly useful for masticating surfaces, the main objection to its use lying in its conductivity and the force necessary for its introduction and polishing.

Amalgam of objectionable colour in anterior teeth is not so contra-indicated in posterior teeth and is of less conductivity than gold, is readily adapted to even frail cavity walls, and easily trimmed to shape or formed with a matrix. If of a formula providing a material which practically neither shrinks nor expands, and which resists the stress of mastication, it will do good service in properly prepared cavities.

Zinc phosphate, if of the adhesive variety, may be depended upon for practically perfect cavity occupancy, and its non-conductivity renders its use advantageous in deep cavities. Its action upon the dentinal fibrillæ and the pulp is as yet undetermined, many claiming it to cause pulp-death, others denying such action. In such case it is better to protect the pulp by means of an intermediate varnish, any of these accomplishing the purpose. As a lining it prevents discolouration of dentinal walls by amalgam and acts as a support

for frail walls, the retention of which may be desired. As a filling material *per se* the "Harvard" seems to be most adhesive and at the same time least soluble in the fluids of the mouth if allowed to harden before access of saliva is permitted. It loses bulk from attrition and by solution in lactic acid.

Gutta-percha is less affected by the fluids of the mouth than by zinc phosphate, and does not permit decay of the dentinal walls of cavities if properly adapted. It is worn out or beaten down by the force of mastication if subjected to it. In the mouth it may either be cupped out, usually when containing high percentages of zinc oxide, or appears to decay upon its surface much after the manner in which dentine is decayed. In shallow cavities the inorganic matter may have disappeared and the cavity be occupied by a yellowish or greenish black mass representing the gutta-percha proper of the original filling undergoing dissolution by bacteria. Comparison of such fillings composed of about one part gutta-percha and five parts inorganics (zinc oxides, etc.), with those composed of high percentages of inorganics seems to indicate that the happiest proportions will probably be found to lie in the neighbourhood of six to six and one-half parts of zinc oxide to one of gutta-percha. The non conductivity of gutta-percha is a valuable property.

Oxychloride of zinc is antiseptic, for a time at least, and has its greatest value as a lining for cavities in which it is necessary to leave *decalcified* dentine and as a coagulant in bleached teeth or root canals.

With these five materials and a good varnish, such as "cavatine" or dammar in chloroform, any combination may be effected which will overcome any condition which may present.

Let us suppose a superior central incisor with a large compound approximal cavity involving the lingual surface, the labial and incisal wall enamel only. The pulp protected with varnish, if not exposed, or capped or canal treated. A gold preparation involves removal of weak walls. Instead, if gold in view be objected to, line with a mix of Harvard zinc phosphate which will be adhesive and set in a reasonable time, place in the cavity and introduce a plastic gold in such manner as not to permit the upper surface of the gold to be covered with cement: wait until the cement sets, cleanse the cavity margins, condense the gold, and proceed to complete the filling with small pieces of moss-fibre gold in a thoroughly

cohesive condition. The combination may be confined to the incisal portion or cervical portion of the cavity as desired.

This principle is applicable to all deep occlusal cavities in molars or bicuspsids when indicated by frailness of walls, depth, inconvenience of undercuts, etc. Amalgam already mixed may be introduced upon moderately soft zinc phosphate to obtain the adhesion of the cement to both the wall and the amalgam.

This may be utilized not only for support of cavity walls, but to insure better exclusion of bacteria and acid infiltrations from the cavity floor and walls, thereby insuring an undisturbed cavity therapeusis. Failures of such fillings are usually attributable to non-removal of zinc phosphate from cavity margins.

The zinc phosphate may be introduced stiffly mixed and pushed to place with a burnisher and the cavity shaped to ideal lines, for gold or amalgam. The method is almost universally applicable where walls are excessively concaved by the depredations of caries. As a typical example may be cited a case of a disto-occlusal cavity in a molar, the buccal and the lingual walls thinned by caries, even beneath the cusps, and the pulpal wall requiring a non-conducting and supporting intermediate. In such cases anchorage is obtained mainly upon the occlusal surface. Another method consists of mixing equal portions of zinc phosphate and amalgam, lining the cavity with the mixture, freeing the margin and completing with amalgam.

Amalgam may be placed by either of the methods given above and allowed to harden, when gold may be built into slight undercuts made in the amalgam or in the tooth. Very pleasing results may thus be obtained. Let us suppose, for example, that an upper or lower molar is decayed mesially in such manner as to approach the pulp and also go beneath the gum or to it. Pulp protection involves the use of zinc phosphate, which, being soluble in lactic acid, must be protected at the gum line, so zinc phosphate is covered with amalgam by any indicated method (the amount of undercut governing), and the contour is restored. When the amalgam is set a hoe excavator or narrow chisel is used to cut a square groove along the mesio-buccal margin between the amalgam and the margin. This should be of width sufficient to remove amalgam from view. The occlusal third of the amalgam is trimmed away to the shape of an ordinary cervical margin and slight buccal and lingual dips made to prevent the pulling

out of the gold. The additional necessary anchorage is obtained by extension into the occlusal surface. Gold is placed at a subsequent sitting.

Another and quicker method is useful in certain cases, where pressure is not detrimental or where the pulp has been protected against pressure. A matrix is adapted and firmly secured to restore the fourth wall of an approximal cavity. Amalgam is solidly packed into the cavity and brought to as hard a condition as possible. The occlusal half or third is cut away with a small chisel. A plastic gold is packed by hand pressure into union with the amalgam. The mercury is taken up by the first pieces, but soon ceases to be absorbed. Any gold may be used to complete the operation. The occlusal surface may be dressed down at once, but it is better that the approximal surface be left to another sitting. Any surplus of amalgam should be removed with a cuttle-fish strip.

Again, suppose a failure at linguo-cervical margin of a large gold filling otherwise good. There is no objection ordinarily to the introduction of amalgam as a repair at this point.

It is to be recalled that amalgam in union with gold discolours upon its surface very promptly, hence it should be kept from view. Gold upon amalgam seems to protect the amalgam from stress, and change of shape is less noticeable. This may be in part due to the condensation of the amalgam by the force of packing the gold, with the absorption of excess mercury by the crystal gold.

Gutta-percha should not be relied upon as a substratum for metal fillings, except where a sufficient seating of the filling upon solid tooth structure is obtained. The same is true when it is covered by zinc phosphate, which, however, having a tendency to dissolve at cervical margin is to be protected in certain cases approaching the gum margin with a guard lining of gutta-percha. Gutta-percha is useful as a non-conductor in deep cavities, subject to the above restriction.

It is not to be presumed that the suggestions here made are rules for general practice. Special conditions must be met by special methods, and these herein set forth are such as have been successfully used by many practitioners in the combat with dental caries. There is no desire upon the part of the writer to claim originality for any method mentioned, nor to detract from credit due the originators by lack of specific mention.—*Ohio Dental Journal*.

IMMUNE AREAS IN RELATION TO CAVITY
PREPARATION.

By RODRIGUES OTTOLENGUI, M.D.S., New York.

The human tooth in its normal condition, untouched by decay, is, to my mind, vastly superior to a tooth containing a filling, and as a corollary it must follow that the tooth decreases in value in proportion as the filling increases in size. If one should attempt to refute this proposition by claiming that a tooth containing a filling may remain a useful organ for any stated period, however long, I will remind him that the life of a tooth after filling being the same, that tooth which receives the filling, at the age of twenty will have served its owner ten years longer than the one filled at the age of ten.

If it be theoretically true that sound tooth substance is of more value to the organism than the foreign body of metal which replaces it, then it becomes necessary that the conscientious dentist should remove non-carious tooth substance only when indicated as an absolute necessity for the future welfare of such teeth as reach his hands in a diseased condition. Thus it is a necessary course, though for many years disputed, that all carious portions of the tooth should be removed. Secondly, I think we have universally adopted the theory that future safety demands that infected territory should also be removed, in all other directions if not toward the pulp. Thus logically we reach the query, shall the cutting go farther? Shall unaffected areas be encroached upon? A study of the vulnerable parts of teeth, together with experience as regards continuance of or recurrence of caries, has unquestionably taught that in many instances a more permanent operation is the result when we carry our cavity margins away from vulnerable territory and towards or into what tentatively may be termed immune areas.

This brings me to a discussion of immunity, but before proceeding, let me pause for an explanation of two phrases which I have just used. I have alluded to "continuance of caries" and to "recurrence of caries." By the first I mean

caries coming after the insertion of a filling, not in the filled territory, but in an adjacent vulnerable situation. An example would be caries of the palatal sulcus of a superior molar which had been unaffected at the time of placing a filling in the distal occlusal sulcus. Recurrence of caries would be the reappearance of caries about a filling which had been made to occupy not alone the distal occlusal sulcus, but which had been carried over into the palatal sulcus as well, whether because of existing caries, or as a preventive measure. I desire in the course of this argument to have it prominently before your mind that I discriminate between a continuance of caries, and a recurrence of caries. Later, I will take this point up again.

In regard to immunity, we may ask, "Is there any part of a tooth which is immune to decay?" In reply I must say "No," because there is no part of a tooth from apex to occlusal surface upon which I have not seen caries. If, however, we ask whether there be parts of a tooth immune as an initial point of inception, I say "Yes." There is quite a difference between finding caries reaching a specified point, having started elsewhere, and caries beginning at a point usually looked upon as invulnerable. For example, I think it safe to say that caries has never been found upon the root of a sound tooth in a healthy alveolus, the integrity of its pericemental attachment being unimpaired. Thus it follows that caries can attack the root of a tooth only after processes of disease shall have exposed it to the agencies within the mouth which cause decay. The root perhaps is the only absolutely invulnerable part of the tooth in a state of health. Of the crown of a tooth—by which I mean all of that part projecting from the gum and covered by enamel—we recognise certain areas as comparatively immune; immune when unaffected by congenital defects, or until such time as the encroachments of advancing age alter the environmental and physical conditions. The locality which I have found least prone to caries is the lingual surfaces of the six lower anterior teeth, though caries of the lingual surfaces of any of the lower teeth is uncommon except in the presence of diseased or resorbed gums, or of artificial dentures, either of which may afford unusual opportunity for the retention of food debris. Next, I would place the occlusal surfaces of all teeth. By this I mean the extreme ends of the cusps of molars and bicuspids, and the incisive edges of cuspids and incisors. In none of these places have I seen caries have its inception

except in the cases where enamel defects have presented pits or crevices, or where, from abrasion, the enamel itself has been removed to an extent which exposes the dentine. In the latter case caries may supervene because of the less resistant nature of dentine, which, under the stress of mastication, is worn away into cup-shaped concavities which thereafter retain debris. Next in order of immunity I place the labial surfaces of the twelve anterior teeth, excepting the cervical parts of such surfaces. Here we do not commonly find decay except after the destruction of the enamel from erosion, or as a result of enamel defects. Please remember that in all cases, I am speaking of decay at its inception. Lastly, and perhaps to the surprise of my hearers, I claim a considerable degree of immunity for the gingival portion of approximal surfaces, the immunity being greater in the twelve anterior teeth.

We now approach the question of theory of so-called extension for prevention. Broadly stated, this means the extension of margins away from positions which are most vulnerable and toward or into territory which is less vulnerable or perhaps immune. It is my opinion that very much more has been claimed for the practice in general than could be supported by proof irrefutable. This statement will oblige me to turn aside for a moment and discuss the value of evidence. It is a deplorable fact that the majority of men understand little of logical reasoning, and of differentiation between assertion and proof. For example, in my Brooklyn paper I attacked the theory of reaching immunity from recurrence of decay by the placing of margins beneath the gum. In reply, Drs. Black, Johnson, and Wedelstaedt all asserted that such procedure brings immunity, but offered not an iota of proof in support of this very assertion which I had disputed.

To be continued.

Reports of Societies.

SCHOOL DENTISTS' SOCIETY.

An Ordinary Meeting of the School Dentists' Society was held at the Hotel Cecil, London, on Saturday, August 3rd, 1901, at 5.15 p.m. There were present the President, Mr. Sidney Spokes, in the Chair, Messrs. Lonnen, Fisher, Knowles, Pickering, Pare, Pedley, Elliott, Cumine, Harrison, Norman Bennett, Tracy, W. J. Fisk, and Hall Jessop.

The minutes of the previous meeting held on April 1st, at the National Dental Hospital, were read and approved unanimously. Letters of regret were read from several members regretting their inability to attend.

Mr. Samuel F. Rose, L.R.C.P., M.R.C.S., L.D.S.Eng., Dental Surgeon North Eastern Hospital for Children, Hackney, having been duly proposed and seconded, was elected a member of the Society in due form.

Interesting Casual Communications were made by Mr. Fisher, Mr. Fisk, and Mr. Harrison; these gave rise to a considerable amount of discussion in which most of those present took part.

Mr. Pickering in an interesting speech then moved the following resolution:—"That, having in view the importance of a proper representation to the teaching profession of the grave evils arising from the neglected state of school children's teeth, a Committee of this Society be appointed to secure an adequate attention to the subject at the British Conference of the National Union of Teachers, to take place at Easter, 1902, and that such Committee be empowered to make all arrangements." This was seconded by Mr. W. J. Fisk. After discussion by several members it was unanimously adopted.

The question of the constitution of the Committee was then considered with the result that Messrs. Fisher, Pickering, Norman Bennett and the Secretary were appointed a sub-committee (with power to add to their number) to carry out the resolution previously adopted.

Dr. Pare was then called upon to read his Paper, but, considering the very short time allowed, which would preclude any discussion, Dr. Pare was (under the circumstances) asked to kindly postpone his communication till the next meeting of the Society.

The Meeting then adjourned for the Annual Dinner, which was well attended, several guests being also present, including Messrs. S. J. Hutchinson, R. H. Woodhouse, J. Smith Turner, W. B. Paterson, J. Howard Mummery, Choquet (Paris), Haderup (Copenhagen), and Prof. Hesse (Leipsig).

Dental News.

GENERAL HOSPITAL, LAUNCESTON, TASMANIA.

Report of Cases treated in the Dental Department and School of Dentistry during the Year 1900.

Extractions	1454
Fillings	122
Regulation Cases	23
Mechanical Appliances supplied	3
Operations under Anæsthetics	78
Miscellaneous Operations, including Extirpation of Dental Pulp, Treatment of Nerve Canals, Removal of Morbid Growths, Treatment of Alveolar Abscess, &c.	184
Advice and prescribing Cases	139
Total	2003

J. RAMSAY, M.B., Ch.B., Surgeon-Superintendent.

LYSOL.

Lysol is a product that has been in use only a few years. According to Gerlach, its discoverer, it consists of the incorporation of oils of tar into soaps in the nascent state. When

coal is distilled, and the heavy oils that pass between 190° and 210° C. are collected, creasote is obtained. When this is rectified and collected between 195° and 205° it gives a product that contains ninety per cent. of Cresylol, the remainder being formed of xylol, guaiacol, creosol, etc. Cresylol is a perfect germicide in the proportion of 0.3 per cent. It has the same antiseptic power as a solution of mercury bichloride, —0.25 to 1000,— but does not have its toxic properties and inconveniences. Cresylol is then rendered soluble, for it is entirely soluble in water, and is incorporated into an alkaline soap. It is this product which is called Lysol. (Tison).

BELFAST BANKRUPTCY COURT.

IN RE JOHN PERRY SMITH.

The bankrupt is the well-known "professor" who carried on the business of dentistry in Ann Street. The case was listed for the first public sitting. Mr. M'Gonigal appeared for the assignees, and Mr. Frank Kerr for Mrs. Litchfield. On the last occasion of the case being before the Court it was sworn that most of the furniture belonged to the bankrupt's wife. Mr. M'Gonigal said in November last the bankrupt swore in an affidavit that he £450 of furniture. The Registrar—In connection with proceedings in another court? Mr. M'Gonigal—Yes. That is a serious matter in the result. What I would suggest is that if Mr. Kerr wants the whereabouts of that furniture investigated he had better appoint a creditors' assignee, and take carriage of proceedings. The Registrar adjourned the case for a week.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by Correspondents.]

To the Editor of the "British Journal of Dental Science."

Sir,—Those who read their Journals" carefully, must have noticed the wonderful way in which the number of Gold Fillings done at a certain provincial Dental Hospital, has steadily increased during the last few months.

The fact that the increase has gone on right through the holiday season, must surprise anyone who knows anything about Dental Students. But Truth is stranger than Fiction. It had better be stated at once that the House Surgeons, poor fellows! are responsible for the gold mania which now possesses the students of this particular Hospital.

To our honour, be it said, that we have *not* imported them from an American Dental College, and we trust the gold fever is only a transient phase not a permanent state, as it is in the dental schools of the Land of the Almighty Dollar.

The fever-germs were introduced into the X. Dental Hospital by the House Dental Surgeons.

The majority of our students at once succumbed to the catching epidemic. The symptoms are as follows:—

1. A regularity of attendance remarkable in a Dental Student, and which used to be conspicuous by its absence.
2. An aversion to gas-dressing, and as a matter of fact dressings of any sort.
3. A disinclination for extraction together with the diagnosis, which *should* go before it.

EXCEPTION. Students *not* down for extraction may be seen in the Extracting Room carefully examining the mouths of better class patients, on the look out, of course, for black specks and pinhole cavities.

4. A distaste for fillings other than gold-fillings, and particularly for root-fillings.

5. (a) A partiality to respectable patients, though they be foreign Jewesses. (b) An antipathy to poor patients, especially lads from the neighbouring Industrial School.

N.B. Patients pay for the gold used in filling their teeth.

As is the case in all fevers, this one affects the victims in varying degrees of severity.

One of the Senior Students has it so badly, that he puts gold fillings in the mouths of the aforesaid Industrial School lads, at his own expense. A Junior Student, who may recover, complained bitterly because he had only put in five gold fillings last week. A new Student, fresh from the "Nursery," as our Demonstrator's Room is called, was stricken down at once, and built up a central incisor—one-third gone—in gold for his first patient.

Surely that is a record!

Of course the Art of gold-filling for results is easier than the uninitiated would expect it to be. A black speck—the judicious use of the fissure bur, together with a few touches from the inverted cone bur produce an ideal cavity for a gold filling. A grain of gold cylinders plugged home with the automatic mallet completes the tale, and another gold filling is added to the list. One of our Juniors put three such gold fillings in the crown surface of an upper molar.

Naturally the student keeps any surplus gold as his perquisite.

This acute fever (for it has not reached the chronic stage yet, and we hope it never will), has produced an unprecedented number of gold

fillings during the past month (August). Fortunately, over half the Students got away for their holidays before they caught the distressing malady. In spite of this, the number of gold fillings was nearly *treble* those done in the August of last year, and far exceeds the number done in those by-gone days when the student charged his patients fancy prices for cost of materials, wear and tear of his instruments, and any other details he could think of.

It is probable that this gold-filling fever will disappear like the plagues of old, as rapidly as it came, on the exit of the present House-Surgeons.

It is only fair, however, to say, that like Mr. W. S. Gilbert's policeman, the House Surgeon's lot is not a happy one. He, or rather they, for we possess two, are at the beck and call of everybody from the store-keeper downwards. They have, in fact, the position and duties of a School-master minus his authority, and consequently have to be renewed every six months.

If after we get our new House Surgeons, the fever develops into a chronic disease, the only possible remedy for overcoming the scarcity of "gold-patients," will be to advertise for them. And then Macdonald's won't be in it!

Thanking you for inserting this in your valuable Journal.

I remain, Sir,

Yours most sincerely,

A JUNIOR STUDENT.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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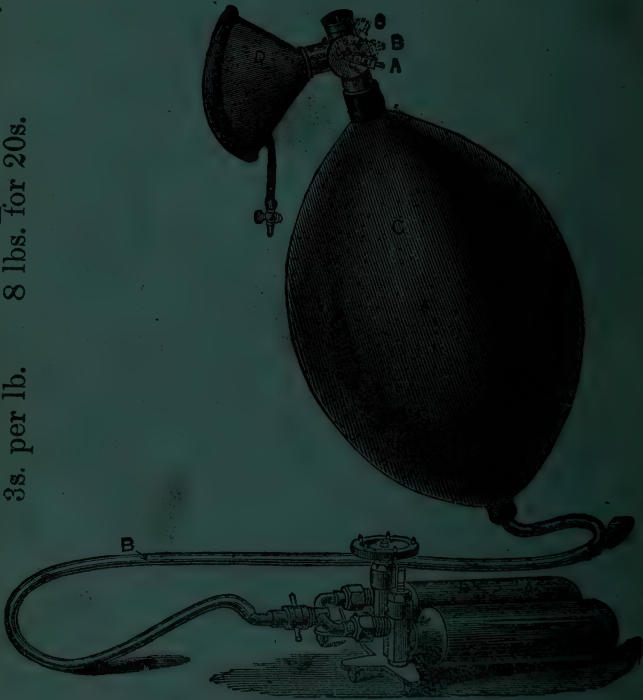
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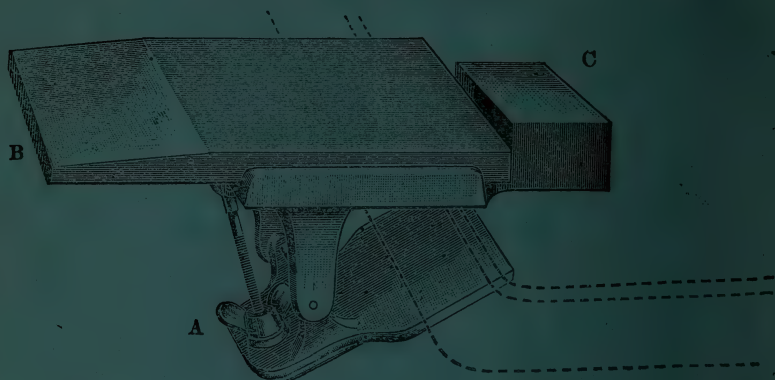
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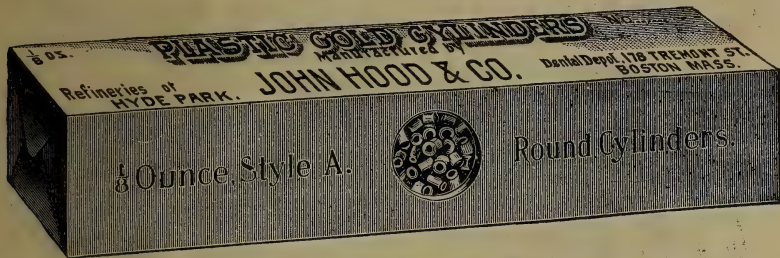
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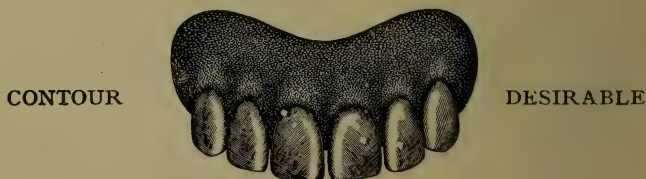
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==EXTRACT==

FROM THE

General Report of the Judges on Awards of Group
XXIV.

"H. D. JUSTI EXHIBITED NOTHING BUT TEETH, but his display was beautiful in the extreme. In colour, translucency and texture, they were all that could be desired; they were a faithful reproduction of the physiological characteristics of the natural organs, both to the individual teeth and relatively to the entire set. Their conformation with reference to close and easy adaptation to the maxillary arch showed careful study of the needs of both patient and operator. Their various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, was so perfect that when in the mouth no suspicion of their artificial nature would be entertained. The disposition of tooth-material was so skilfully managed as to secure the greatest amount of strength with the least bulk; and the insertion of platinum pins was so arranged as to render their displacement an almost impossible accident."

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NERVE DESTROYING PASTE or JELLY. A Painless Devitalizer
Universally used for the last 20 years. 5/- a Bottle.

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Deodorant and Germicide. Successfully employed for 12 years. 4/- a
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BACTERICIDE, GERMICIDE, PARASITICIDE. A Reliable and
SAFE Deodorant, Disinfectant and Germicide. It is very easy and
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SOLUTION OF COCAINE—Neutral. This is the only absolutely
SAFE, RELIABLE and PERMANENT SOLUTION of Cocaine ever introduced
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ANTISEPTIC ROOT FILLING. Insoluble, Unchangeable, Un-
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Sole Agents for above: C. ASH & SONS, Broad St Golden Square W.

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For sale by the principal Dental Depôts throughout Great Britain

IMPROVED Gutta Percha Nerve Canal Points

Tough, Elastic, and Durable,

Prepared by

GEO. POULSON, HAMBURG.

Round, in boxes of 150 points, 2s. per box.

No. 1 light grey, No. 2 dark grey, No. 3 brown, No. 4 pink.

These points are hand-made and of the best and purest Gutta-percha. No. 1, 2 and 4 contain very little colouring and No. 3 is made of pure Gutta-percha.

BERLIN, March 11th, 1900

Mr. GEO. POULSON.

My dear Sir,

Your samples of gutta-percha points received and am pleased to say that you have filled the *long felt want* and congratulate you upon your success. I find the nerve canal points all that could be desired, viz., tough, elastic and made in the proper sizes for the work designed for their use. I don't think you may have any hesitancy in announcing that you have the best guttapercha points and would advise you to place them in the dentists' hands as soon as possible and let them be convinced.

Kindes regards,

Dr. E. R. HOFF.

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Respectfully,

RICHARD MIDDLETON, D.D.S.

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THE HYGIENE OF THE MOUTH.

A GUIDE TO THE

Prevention and Control of Dental Diseases.

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F.R.C.S. Ed ,

Dental Surgeon to the Evelina Hospital, Southwark.

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First—It publishes more original matter than any of the other dental journals, and by “original” is meant matter prepared especially for its pages, not papers which have been read elsewhere.

Second—It gives more illustrations than any other dental periodical, believing that the demands of to-day make it necessary to assist the text with engravings. These illustrations are of the highest order.

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Fourth—The magazine regularly reports the proceedings and discussions of several of the leading dental societies, and is moreover, rapidly becoming the preferred medium of publication of the best writers.

Fifth—the Editor, Dr. Ottolengui, has long been widely known through his contributions to dental literature, and his advent into journalism has been favourably received, while the new policy of the magazine, as originated by him, has attracted much commendation.

The subscription price is only 8s. 6d. a year, including postage; you can order it through your dealer.

R. S. Williams' Gold

Is known to every dentist in the world as the “King of Filling Materials,” on account of it excelling all others both in respect to results achieved and the ease with which it can be manipulated.

R. S. Williams never made a gold filling which would last a month or a year only. When after hard labour he produced something worthy to be given to the profession, it proved also to be a lasting tribute to his inventive genius.

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For sale by the principal Dental Depôts in Great Britain.

British Journal of Dental Science

No. 804. LONDON, NOVEMBER 1, 1901. VOL. XLIV.

THE MOVEMENTS OF THE MANDIBLE.

By T. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng.

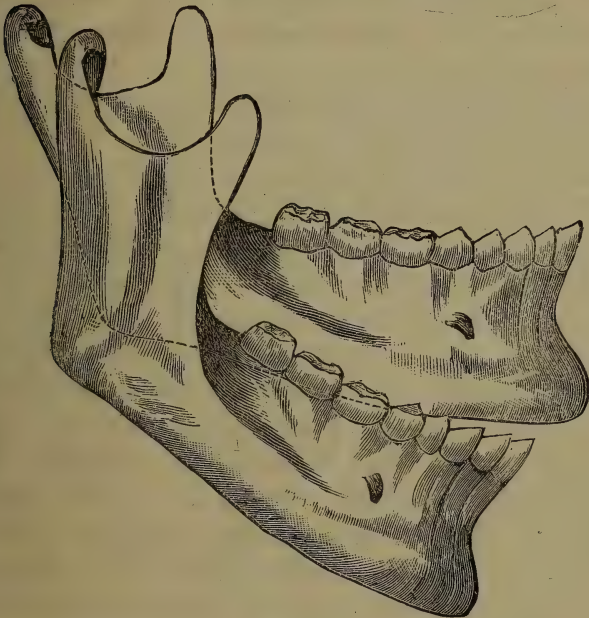
(Continued from page 920.)

John Hunter's account of the movement of depression of the mandible is as follows:—"The condyles only may be brought forwards, while the rest of the jaw is tilted backwards, as in the case when the mouth is open; for on that occasion the angle of the jaw is tilted backwards, and the chin moves downwards, and a little backwards also. In this last motion, the condyle turns its face a little forwards, and the centre of motion lies a little below the condyle, in the line between it and the angle of the jaw. By such an advancement of the condyles forwards, together with the rotation mentioned, the aperture of the mouth may be considerably enlarged, a circumstance necessary on many obvious occasions."

From this description it is obvious that the illustrious anatomist fully recognised the probability of the existence of a centre of motion as a constant during the movement of depression of the mandible, indeed he went so far as to guess at its site.

It was extremely fortunate for the present writer that before reading John Hunter's account of the movements of the mandible, he had made some observations of his own ; otherwise he would have assumed that Hunter's statement as to the locality of the centre of motion was the result of actual experiment, and was therefore almost certainly correct. He was convinced, however, as a result of his own investigations that, although Hunter's genius had enabled him, without experiment, to predicate a centre of motion, he had not troubled to verify his conjecture as to its site. This view is somewhat corroborated by the unaccustomed looseness of phrase employed by Hunter in his description. The writer's opinion of John Hunter's work in connection with the teeth is such that it was only after a series of observations extending over a period of some months that he felt himself justified in stating his conviction that the centre of motion of the mandible is elsewhere than the anatomist asserted it to be. These investigations were at first carried out in the following manner. Wherever a suitable subject could be obtained (one with teeth fairly normal in arrangement and articulation) careful measurements of the mandible were taken. From these measurements a diagram of the mandible was sketched out on paper in outline. This would represent as nearly as possible a vertical section through the centre of the mandible supposing it, for the purposes of illustration to be solid from side to side. This sketch was then cut out and duplicated, and the original and duplicate pinned to another piece of paper, one exactly over the other. Then the subject was instructed to open the mouth so far as it would go without any conscious effort, and the distance travelled by the condyle measured as carefully as possible, also the extent and direction of movement of the angle of the jaw, and the extent of separation of the incisor and bicuspid teeth. The superjacent paper diagram was then shifted to the position of the subject,

mandible as ascertained by these measurements and pinned down. These then appeared as shown in the following diagram. This was repeated for varying extents of depres-



sion, and it was then only a matter of a little care, and an elementary knowledge of geometry, to decide whether there was a centre common to the mandible in all its positions, and its site. The obvious source of possible error in this method was the difficulty in obtaining correct measurements, so, at the suggestion of Mr. Badcock the writer supplemented these experiments with the following:—A piece of orange wood was firmly wedged between the lower central incisors of the subject so that it projected horizontally from the mouth. The subject was then placed so that a shadow of the profile was thrown on a sheet of white paper, the illuminating point being

a large incandescent globe about fourteen feet distant, and the paper as near the face as practicable. The outline of the head and face with the orange wood *in situ* was sketched upon the paper from the shadow, and when this was done the subject was instructed to open and shut the mouth quickly, but without effort. The movement of the shadow of the point of the stick of orange wood was then followed with a pencil, and from the tracing thus obtained the centre of the movement of the mandible was worked out.

It will be seen that the same objection applies to this method as to the preceding, viz. :—that in the working out much depends upon measurements, and the being able to exactly locate structures beneath the integument, in some cases an exceedingly difficult matter. It was gratifying to find, though, that these experiments in the main corroborated the earlier ones, an additional fact, however, being brought to light, this fact being that although the centre of movement was fairly constant for moderate degrees of depression, (about the first two-thirds of the total possible movement), the latter part of the movement was invariably irregular, the centre tending to shift towards the condyle. This, it is interesting to note, is exactly the reverse of what we read in *Tomes' Dental Anatomy*. An explanation of this irregularity of movement during the extreme stage of depression will be suggested when the mechanism of the movement is discussed.

The next method of investigation adopted was quite free from the objections to which the others were liable. It required, however, special apparatus.

(To be continued).

ADDRESS.*

By PROFESSOR A. H. YOUNG.

For a second time, within a comparatively short period, my colleagues in the Dental School of Manchester have done me the honour to commit to my care the agreeable duty of distributing the prizes to the successful students of the year. I need hardly assure either my colleagues or my friends the students, that it is a great pleasure to me to take any part in the proceedings of to-night, but at the same time I very much regret the absence of the distinguished member of the dental profession who we hoped—had it been possible, would have presented the prizes on this occasion.

Few men have done so much for the advancement of dental education and of dental surgery as Mr. C. S. Tomes, F.R.S., F.R.C.S., &c., and with a due recognition of the growing importance of the dental department of the Owens College—Mr. Tomes was invited to open the coming session of both the dental and medical departments, and to deliver an introductory address—to the students of these departments. Mr. Tomes' arrangements did not, unfortunately, permit him to accept the invitation for the present session, and we have also to regret that he could not be with us to-night.

I alluded a moment ago to the growing importance of the Dental School of Manchester. It is only some fifteen years ago since the school was established. Its progress since then has been remarkable. Commencing with a small entry for the first year of three or four students, the number of students

* Delivered at the Victoria Dental Hospital. Manchester.

attending classes each year has now reached between fifty and sixty.

Additional class rooms and laboratories have already been provided at the Owens College ; a corresponding increase in the accommodation for Hospital work had also been made ; and the question of still further extension is already a pressing one. Of the theoretical side of Dental Education I need only say that it is, I believe, fully met in every way at the Owens College.

But theory and practice must go hand in hand. There could be no dental school without adequate opportunities for clinical work and instruction. These are provided in Manchester at the institution in which we are assembled, the Victoria Dental Hospital. It is an institution which has, from the first, justified its existence and established a strong claim to the confidence and approval of the citizens of Manchester by reason of the admirable work it has done in the treatment of patients and in the relief of suffering. But it has done much more than this. It has formed a centre for the education of future practitioners of dental surgery. I am not sure indeed whether the need for such a centre in Manchester did not lead to the foundation of the Hospital. Be this as it may, I venture to take the opportunity to assert that the educational duties and responsibilities of all hospitals are of the greatest importance to the community, and when these duties are properly performed an additional, and what should be an irresistible claim for generous and cordial support is established. I wish that this were more generally recognised. I cannot understand the feeling, which undoubtedly exists in some quarters, that the interests of patients may suffer in Hospitals in which students are instructed. It is exactly the reverse. Nowhere, neither in other similar, but non-teaching, institutions, nor in one's own home are the

interests of patients more jealously safe-guarded and protected than in such Hospitals.

I know of nothing that more directly concerns the welfare of the nation than that the progress of medical science should be facilitated, and that no obstacles should be allowed to remain in its path.

Every Hospital should be a centre for the advance of knowledge and for its dissemination, and every Hospital should take its share in the training both of those who may subsequently become members of its active staff, and of others to whom the health and safety of the public are to be entrusted.

The Victoria Dental Hospital has done, and is doing, its duty in this respect with the greatest success, and I may be allowed to congratulate the students who have been admitted to its practice and who have had the ready assistance and unselfish help of the members of the Honorary Staff. Particularly do I congratulate those who have distinguished themselves during the past year, and in this I include with the prize winners all who have worked conscientiously and in earnest.

It is something to have done one's best, and the knowledge that this has been done is after all the highest reward.

To those students who are at the end of their studentship, and who will soon be engaged in the active work of their profession, I heartily wish every success, and would ask them to remember that "nothing is worth doing and no life is worth living" which does not add something to the advancement of knowledge, and do something for the good of humanity.

British Journal of Dental Science.

LONDON, NOVEMBER 1, 1901.

THE STATUS OF THE PROFESSION.

Two leaders in medicine have lately given utterance to their opinions with regard to the dental profession. One was SIR MICHAEL FOSTER at the International Dental Federation held at Cambridge, and the other was Professor VIVIAN POORE at the Prize Distribution at the National Dental Hospital, London. Though the speeches differed much in style, the bearing of both was the same, namely, the principles inculcated by Herbert Spencer that knowledge was powerful when it was utilitarian, and education only effective as it tended to impart knowledge in the best possible way. SIR MICHAEL FOSTER says that the dentist is "a healer within the limitations of his special sphere of activities." The different countries are trying to decide what the dentists' limitations are, and the best mode of fitting him for his special sphere of activities. In the early days of dental reform there were, as most of us know, two camps. One party wished dentistry to stand as a distinct entity, like veterinary surgery for instance; the other claimed as their ideal that dentistry was a branch of surgery, and looked forward to the time when every practitioner would hold a surgical diploma. The former party lost the day, and dentistry was taken under the wings of the Royal College of Surgeons, from which arrangement much good has resulted and a power obtained which has raised the status of the profession in a surprisingly rapid way.

But latterly signs have not been wanting which point at dissatisfaction with the present state of affairs. At the last International Dental Congress one of the Resolutions adopted (No. 8), was "That the course of study in the dental schools should be a four-year one." This evidently means that dental students shall be entirely trained in dental colleges which will carry out the curriculum required by Dental Corporations as in the United States. SIR MICHAEL FOSTER also seems to sound the same note, for he said, "While the dental profession has much to gain in a close alliance with the medical profession, yet one object, and one object only ought to be the aim of the training of the dentist, *i.e.*, to make him as sure and as efficient a *workman* as possible. SIR FREDERICK TREVES many years ago said the same thing, "The first duty of the dentist as of the surgeon is to be a good *handicraftsman*."

Dr. POORE in his speech gave utterance to very much the same idea. He pointed out that the dental curriculum, like all others, was becoming more exacting, and that specialism was becoming more subdivided and refined. He said that specialism was often overdone, but this was not and could not be the case with dentistry, which as a specialty stood by itself of necessity. We all know that the curriculum is becoming more exacting, but we also want to know whether it is becoming more exacting in the right direction? The student has now so much to do in his two years hospital course, that practical technique sometimes stands a chance of being thrust into the background. We all know that the dream that every dentist should possess a medical or surgical diploma will never be realised, and we also know that the permission granted by the legislature for a medical man to call himself a dentist and to practise dentistry whether he has any special training or not, is an anachronism and an anomaly. Dentists are becoming more educated and more influential, and, as they increase, the cry of "Dentistry for the Dentists," will probably make itself more heard. It remains to be seen whether the present guardians of our interests will keep the profession in these islands abreast of dentistry in other lands,

and also safeguard the interests of those who have passed the "exacting curriculum," from the unfair competition of those who have not taken the trouble to do so.

DEATH UNDER NITROUS OXIDE GAS.—At Kensington Mr. Drew held an inquest on Eliza Ellen Monier Bishop, aged 52 years, widow of Lieutenant-Colonel Foster Monier Bishop, Indian Staff Corps, of 23, Levern Mansions, Earl's Court. It was stated in evidence that the deceased lady was addicted to habits of intemperance, and becoming ill, it was decided by her medical man to put her under laughing gas. Dr. Bourne gave a small quantity of the gas, and before Dr. Clemon could operate the deceased suddenly expired. An autopsy showed that the deceased had a weak heart and extensive liver disease. The operation was the only possible chance of prolonging her life, her death being certain within a few hours. Death was due to heart and liver disease, and unconnected with the gas. The jury returned a verdict of "Death from natural causes."

THE KING, who was recently graciously pleased to become patron of the New Dental Hospital of London, Leicester Square, has now commanded that in future the institution shall be known as the Royal Dental Hospital of London. The new hospital is now finished and in full working order, but donations and subscriptions are urgently needed.

THE CAPE MEDICAL COUNCIL.—According to the Annual Report of the Cape Medical Council the dentists in Cape Colony are the most law-abiding and obedient class. It was brought to the notice of the Council that dentists and other registered persons were actually advertising in the news-

papers. This state of things, which is not unknown elsewhere, received the very careful consideration of the Council, and they came to the conclusion that they would call upon all persons who were behaving in this manner to immediately cease from their unethical conduct. To make the matter quite clear the Council passed a resolution declaring in set terms that advertising in a newspaper was improper and unprofessional conduct. The report of the Council states that in consequence of passing this resolution the dentists and other registered persons have withdrawn the objectionable advertisements. So completely did the resolution effect its purpose that formal proceedings were only necessary in one case, and in that one the administration of a caution was all that was requisite to secure the fulfilment of the Medical Amendment Act.

“AMERICAN DENTIST.”—“Justice” writes to the *British Medical Journal*: Is it legal for a D.D.S. of America without an English qualification, and not on the *Dentists’ Register*, to style himself on his plate and in the local directory “American Dentist”? If not, what steps can be taken to prevent it?

The *Journal* replies:—Assuming, as we infer to be the case, that the acts attributed by our correspondent to the American dentist have been committed within the United Kingdom, and also, as is to be gathered, that the dentist in question has taken up permanent residence in the United Kingdom, and is practising under the title which our correspondent quotes, we are advised that the circumstances would bring him within the provisions of the penal sections of the *Dentists’ Act*. Our correspondent’s best course would be to report the facts to the British Dental Association, 40, Leicester Square, W.C., with the view of the matter being investigated, and such action being taken as the law permits without the informant’s name being disclosed.

A BOGUS DOCTOR.—Some curious facts came to light at an adjourned inquest held last week on the body of a seaman at West Ham. He had been medically treated by a person called Head, who posed as an unqualified medical assistant of forty-one years' experience. On his plate he described himself as "Surgeon Dentist and Accoucheur," although he did not pretend to be a registered dentist. His therapeutical armamentarium consisted in some burnt sugar, Epsom salts, and bicarbonate of soda, none of which was likely to afford much relief in pleurisy of old standing which had degenerated into empyema, from which, as the autopsy showed, the man had died. The jury found that death had been accelerated by the gross ignorance of Head, for whose presence as witness a warrant had had to be issued, and thereupon the coroner committed him for trial on a charge of manslaughter.

SOLDIER'S ARTIFICIAL TEETH.—A soldier who receives a wound or other injury while in the performance of military duty, or contracts a disease in and by the Service, and thereby incurred such loss of teeth as interferes with his efficiency as a soldier, will be provided with artificial teeth at the public expense, if in the opinion of the medical officer he will thereby be rendered efficient.

SOLDIERS AND SAILORS' TEETH.—At a recent meeting held at Swansea, Mr. H. J. Thomas in his Presidential Address drew attention to the large number of men who were refused admission to the army and navy on account of the poor condition of their teeth, and stated that a few years ago when a recruiting war-vessel visited Swansea 20 per cent. of the boys offering themselves for service were rejected for this reason. Mr. J. C. Oliver of Cardiff urged that information as to the

proper preservation of the teeth should be disseminated by the State and that every child attending a public elementary school should have his or her teeth periodically examined during the whole period of school life. It was resolved to send a communication to the school boards and boards of guardians in South Wales and Monmouthshire reminding them that it was their duty to see that the teeth of children under their care were looked after and pointing out the injury that was being done to children by the loss of their teeth.

THE GUINEA SET.—A correspondent to the *Echo* gives the following advice to a querist: "It is really surprising that you and many others do not exercise a little thought on the matter of cheap teeth. You must be aware of, or know, someone who has been to a practitioner of repute and has heard the price they have paid for skilful attention, and yet you allow yourselves to be led away by alluring statements and illustrations setting forth some assumed advantage, invention, or exclusive method, practised only by Mr. So-and-So, at a cost, if one only thinks, below reasonable expenses for labour, leaving out materials, time for individual attention, and fee in return for skill displayed. Why need and does A pay £10 if B can obtain the same result for £1? It may be the same thing but not the same result; that is the point. Once more I will remind, that a dentist does not sell materials. Then again, respecting the non-extraction of stumps; this is a particularly alluring item; sounds "just the thing"—otherwise you would not venture. It certainly is, as you say, "only a draw." It is most important that all stumps be removed at back of mouth; the six upper front stumps only can be left, and these must have their nerve canals antiseptically treated and filled, or they will soon give trouble, and the new teeth will not fit. Take nitrous oxide and have all necessary stumps out, and wait three months before having teeth made, or have a temporary set."

THE DENTIST AND HIS SPECULATION.—A well-known dentist of New York purchased a residence in a fashionable quarter of Brooklyn as a speculation. He never lived in the house, and shortly after completing the purchase, being dissatisfied with it, he endeavoured to dispose of it for at least the same price as he gave for it. But, unfortunately no one appeared inclined to avail themselves of the opportunity of purchasing such a desirable house. Mortified at the failure of his speculation, the dentist resolved to have due revenge upon his wealthy neighbours, and one morning the aristocracy of the neighbourhood were amazed to find a huge board attached to the front of the house, offering it to negroes only. The disappointed dentist was so determined that negroes should buy it that he offered 500 dols. (£100) commission to the broker who successfully disposed of it to a man of colour. The racial feeling between the white and coloured people in New York runs so high that the aristocratic residents rose up in loud indignation. The advent of a coloured tenant in the district would ruin its social status. It was a clever ruse on the part of the chagrined speculator. He anticipated by this means to force a neighbour to buy up the dwelling to prevent the coloured invasion, and thus to obtain the figure he wanted for it. His next-door neighbour is a wealthy merchant, now away yachting, but it is anticipated that he will save the neighbourhood on his return by buying up the house.

WATER AND THE TEETH.—Herr Rose has collected statistics in Bavaria and Herr Foerberg in Sweden which tend to prove that the water we drink has an important influence on the teeth. Caries or decay in teeth is less common where the water is "hard," owing to the presence of chalk and magnesium salts. The harder the water the better the teeth. Probably the presence of lime in the water benefits the bones in general.

THE Walker Entrance Scholarship at the Royal Dental Hospital of London had been awarded to Mr. Frank Butler.

Abstracts of British & Foreign Journals

DENTINE STERILIZATION.

By M. CHOQUET.

I wish to prove that the laboratory is useful in every day practice, and that it is not only useful but absolutely indispensable to the persons who wish to work scientifically and practically, and that the results obtained in *anima vivo* or *nobili*, according to the case, are only the results of the experiments made in *vitreo* in this same laboratory. Without going farther, why are the experiments in the sterilization of living dentine defective when carbolic acid is employed, and when alcoholic antiseptics or the great majority of essential oils are used ?

To this question we answer by saying that to wish to make one of the antiseptics above mentioned penetrate the dentinal canaliculi without having submitted the dentine previously to a special treatment, is to wish to dissolve oil in water by simply floating it on the surface. It is to wish to clear a section of tissue obtained by freezing (that is to say, without any inclusion, and consequently aqueous, hydrated), by floating it directly in a bath of one of the clearing agents employed in histology. What will take place in that case ? The section, however fine it may be, will remain in vain an indefinite time in that clearing agent ; the water will never be driven out.

On the contrary, if we dehydrate in a progressive manner this section of tissue by using alcohol of different strengths, and gradually stronger, we shall see it become clear and transparent when taken out of the liquid and put into a mixture of alcohol and clearing agent. The phenomenon observed for this section of tissue must be the same for the preparations to which we must resort, this barrier of dentine penetrable by microbic agents, but at the same time considered by Dr. Mahé as impossible for the therapeutic agents.

Before filling a cavity we must act in the following manner : (1) To clean the cavity as much as possible till we remove every portion of softened dentine ; (2) dry the cavity and wash it with alcohol at 70 per cent. ; (3) wash the same with absolute alcohol ; (4) use a mixture of alcohol and toluol for washing the cavity ; (5) dry and fill.

When I began the first experiments I could not, it is easily understood, do them in the mouth of my patients, so I was obliged to work in my laboratory. To make my experiments upon freshly extracted teeth did not please me on account of the density which exists between the different organs I had to work upon. So I thought it much better to act upon tissues approaching the nearest to the human dentine, and I began to work upon hippopotamus' tooth. I turned a few cylinders of ivory representing three or four centimetres in height and one in width, and with round burs I hollowed a fairly cylindrical cavity of two centimetres deep. I used one of these cylinders dry, and the other after having remained during an hour in a solution of chloride of sodium at 1 per cent.

Then I dried as much as I could the external portion with a linen rag and placed in the cavity a mixture of toluol and alcohol, to which I had added some methylene blue. The same quantity of liquid was placed in the dry cylinder we shall call A and the moist one B. After five minutes in A I could see on the peripheral borders a slight blue tint, whilst nothing apparent was visible in B. Then I threw away the liquid of the two cylinders, I washed them in water and cut them longitudinally. The cylinder A was almost wholly crossed by the staining agent, while in the cylinder B this staining was exclusively visible in the periphery of the cavity.

What are the conclusions we can deduce from those cylinders and teeth, from those dead and living tissues ? The following ; A layer of dentine which is not penetrated by certain liquids when it is moistened is entirely penetrated by the same agents if it has previously undergone certain preparations.

Let us now consider how we can make an antiseptic penetrate the dental canaliculi ; and how we can be assured that this antiseptic has performed its bactericidal properties.

With this understanding, let us see again how we are to operate in order to obtain a perfect sterilization. (1) Mechanical cleansing of the cavity ; (2) dehydration, not with very hot air but cool air, to which is added afterwards

the energetic action of alcohol of different strengths ; (3) dry, with hot air and substitute a mixture of alcohol, xylol, geranium essence, and hydronaphthol for the alcohol alone. We have two ways ; either the filling may be done in the same sitting, or it will only be done twenty-four or forty-eight hours after.

CRITICISM OF THE GENERAL MEDICAL COUNCIL.

A correspondent to the *Referee* has been criticising the "tyranny" of the General Medical Council towards medical and dental practitioners who do not conform to its code of ethics. The following replies have appeared in the following issue.

"F.R.W." says :—"Your correspondent 'G.V.A.' has some very hard things to say of the General Medical Council, which much-abused body is possibly not an ideal one. But it is an institution of value both to the general public and to medical men. It has no rules that a conscientious practitioner cannot adhere to with advantage.

"G.V.A.," evidently thinks that American dentists are badly treated because they have no legal status in England, their diplomas not being registerable. Has it occurred to him that an American dentist can have his name placed on the register in the same way as an English dentist—by passing the examinations? Does he know that if an English dentist went to America he could not practise (except in a few States) until he had undergone the examinations required in that country?

I am a registered English medical practitioner, and I practised for some time in one of the United States. Did my London qualifications avail me anything? Nothing whatever. I had to pass the State Board, and, although I had already passed a much higher standard, I recognised that it was only right and proper. If the most eminent physician in London went there he would have to do the same, and this is also true of some of the provinces of Canada.

"G.V.A." lays much tyranny at the door of the General Medical Council. There is no such body in the States or Canada, and yet these regulations obtain. And let me tell

"G.V.A." that they are more stringent than in England. For in this country a qualified man, even though not registered, may practice under certain restrictions, whereas in Canada and most of the States he may not practise at all until he has conformed to the requirements for registration.

And again I say it is right. The standard required of one man in a country should be required of all, be it a high or a low one. If a man wishes to practise in a certain place, let him pass the examinations which men before him have had to do."

Dr. Greenwood writes :—

"The General Medical Council unquestionably is in need of many reforms, but the taking away its power of controlling "infamous professional conduct" is not one of them; and to assert that this power has ever been exerted to crush independence and originality of action in any good sense is gross misrepresentation.

The high-handed dealing with the "Birmingham doctor" was nothing more than enforcing its well-known injunction against touting and advertising for patients by a registered medical practitioner. This has been regarded for many years as infamous professional conduct, and the only novelty in the above case was that the Council refused to allow a practitioner to shelter himself behind a lay committee and shirk his responsibility by claiming to be only the officer of a public institution. Advertising and touting may be regarded by some of your readers as only a common-sense method of doing business, but the great majority of the medical profession think otherwise, and believe that in this they have the support of the more intelligent portion of the community, who consider with them that the public will be safer in the hands of professional men not in the habit of advertising their merits and belauding themselves in the public Press, after the example of quacks and charlatans.

Next, as nearly the whole class of American dentists, to whom your correspondent refers, largely exist by advertising, it would not be surprising if they were refused admission to the Dental Register, even supposing the Medical Council had the power of registering them. But as that body cannot possibly admit them, as the foreign qualifications they possess are not registerable under the Dentists' Act, it is difficult to see by what process of reasoning their non-registration by the Council can be urged as an offence."

THE GENERAL PRACTITIONER AND THE MOUTH.

It is clear to all observers that, in spite of the close relationship between medical and dental science, the general practitioner, as a rule, does not accord to the mouth a degree of importance proportionate to its bearing upon the maintenance of health. This involuntary overlooking of oral disturbances by the medical practitioner has been in some cases productive of fatal consequences. Fortunately, this condition of things is not now a stationary one. The surgeon and physician are beginning to give to the mouth the attention to which it is entitled, and it is probable, judging from recent developments in medical science, that before very long the mouth will be looked upon by the medical practitioner as the source of many maladies at present considered to be of doubtful etiology.

In the *Therapeutic Gazette* for July, 1901, Dr. Bidwell gives a detailed description of the treatment to be followed before and after abdominal operations, and devotes a few well-considered lines to the mouth and teeth. He says, "Attention to the state of the mouth is of importance, not only in preventing decomposition of the stomach contents, with constant vomiting and diarrhoea, in preventing septic bronchopneumonia, which has been a fruitful cause of death after stomach operations, but also in preventing the formation of a parotid bubo, which may lead to suppuration and exhaust the patient's strength."

This important question of the relationship of the mouth to the general state of the organism is as yet in its infancy, although its vital nature has been repeatedly pointed out in medical and dental gatherings.

Dr. William Hunter discusses this topic in a carefully written article published in the *Practitioner* for December, 1900. This is one of the most important papers bearing upon this question from a medical standpoint.

In the opening address of the Third International Dental Congress, Professor Godon also emphasized the *role* of the dental surgeon, and the absolute necessity of maintaining the region under his supervision in a condition of health.

The recent works on buccal semeiology and the ever-increasing enthusiasm of some of the members of both the

medical and dental professions in the study of constitutional disorders of dental origin, and *vice versa*, warrant the assertion that the important part played by dentistry in the conservation of health is being more fully appreciated.—Editorial *Cosmos*.

MORE ARTISTIC AND SATISFACTORY RESULTS IN OPERATIVE AND MECHANICAL DENTISTRY.

By W. H. TAGGART, D.D.S., Chicago.

In these modern days do not let your patient be the first to suggest to you that a porcelain filling would be a very satisfactory one for her unsightly, badly filled incisor; suggest it yourself; for if you let her suggest it and finally make a success of it she is apt to think she is the originator of the process and take away your glory. Suggest these things to the patient yourself, and you will soon create quite a demand for a class of work for which you thought there was no demand. Do not say to your patient "they are not practical, I tried one and it was a failure." Haven't you had many a gold filling fail, and where would the most skilful gold filler be to-day if he had passed verdict on any material or proc because he had tried it once? Patients are not fools, and if you cry down an artistic process which has gradually become popular with progressive dentists, you show only your lack of ability and not superior knowledge, for this work has come to stay, and the sooner you sit up and look intelligent on the subject the sooner your patients who may never need a porcelain filling will begin to think you are more than an ordinary man in your profession. But use good judgment as to where you put them, and always be ready to take off your hat to gold as a filling material; in other words, they have at present a limited field, and should be used where the artistic result is paramount to all others, not that they are weak or lacking in saving qualities, but because gold has all the good qualities except the artistic one. Do not try to do this work in a half hearted way, and when through say, "There, I told you it was no good," for you will never succeed: but go at it with the understanding that it is going to tax the full capacity of your skill and patience.

Another thing I wish to call your attention to. If you have not already started making and using an all porcelain

crown do so at once, for you will have to come to it sooner or later, as it is the coming crown, and five years from now you will be ashamed of your gold crown and bridge-work. Do not offer trivial excuses for not using them, because that shows more than anything else your lack of ability to make them.

Do not extract the last lower tooth in any mouth if it has any kind of a healthy attachment to the jaw. I would not allow the best dentist in the world to take out my last tooth on the lower jaw. Clasp it properly and you will get the blessing of a grateful patient; extract it, and the chances are you will have to make excuses about full lower plates the balance of your days. Lower partial plates can be made the most satisfactory of any plate worn, and yet how unsatisfactory the majority are, moving up and down at the slightest change of the muscles of the tongue or cheek, and only becoming comfortable after they have been ground so as to be too short to be useful. Clasp one or two of the lower teeth properly and you may perhaps prevent an intelligent patient from patronizing another dentist who knows his business. In these clasp plates always have a lug extending on grinding surface, so as to prevent clasp from injuring the tooth, and also because patient can bite fifty per cent. harder, there being no undue stress on the soft tissues.

It is hard enough to hold our patients, do the best we can, but do not lose one because you cannot make a satisfactory lower partial plate. Remember our desirable patients as a rule are intelligent people, and if you do not master these artistic and practical details they will shortly look for and find some one who will, and you will lose a good patient solely from your lack of ability.

Set all your banded crowns and bridges with pink base plate gutta-percha. First, because it acts as a cushion between the crown and root, and if any undue strain comes it will yield before it will break. It tends to cushion the blow. Second, you can be more uniformly successful and no haste is necessary, it takes away nearly all of that nerve strain which always accompanies the setting of a crown or bridge with cement. Fourth, the crown or bridge can be taken off at any time within five minutes for repairs or to fill an adjoining tooth; certainly a sufficient number of reasons for at least trying the process, which, if successfully mastered, will wean you for ever from setting crowns or bridges with cement.—*Dental Review*.

THE LOGAN CROWN VERSUS THE GOLD BAND CROWN.

BY WALTER H. NEALL, D.D.S., PHILADELPHIA.

The poet hath said, "Uneasy lies the head that wears a crown," and to serve the writer's needs this may be fittingly distorted into "Uneasy lies the *root* that wears a crown," for nine times out of ten, crowns of the all-gold variety, embracing the Richmond and, in fact, any band crown, are so ill-adjusted that a continual sense of discomfort, and often of positive pain, is experienced while the crown is in position, the loss of the root being a natural consequence of the irritation thus engendered is not allayed or relieved. Thus, rather than proving a benefit, the result is often a positive detriment to the tooth as well as a menace to the general health. For it cannot be gainsaid that when an all-band crown, which has been thrust under the gum, is removed after but a few years of service, it is often so foul, from the accumulation of food particles and the breaking down of the root, to say nothing of gum tissue, that one's stomach almost revolts at the nauseating odour. In fact, for illustration, ream out the cement of a gold crown that has broken off in the process of mastication, taking with it a piece of enamel, and notice the unbearable odour evolved from the burring.

It is claimed that this is because the crown has not been properly fitted. The writer takes the ground that the great majority of crowns are *not properly fitted*, and also that the very nature of the operation—this insertion of an all-band crown beneath the gum—is conducive to imperfect, unreliable work.

Not that the dentist is dishonest in his intentions, but rather is the fault due to the opportunity presented for concealment, for the time being, of unskilful workmanship and the neglect of accurate fitting.

The champions of the all-band theory will sharply make answer: "You are wrong; care, exactness, and neat fitting is the rule." Probably in one case out of ten, as has been stated. The dentist who has not a speciality, but practises his profession in all its phases—and here again, the great majority leads—is the one who is liable to err. In his practice he will necessarily insert crowns, and, to keep up to the times, he naturally turns to the all-gold crown or one of its

many modifications, and when once the mania for crowning roots has seized him, he seems blunted to any or other possibility.

Even a tooth but partially broken down receives no consideration, and a sharp, feather-edge band is thrust down between gum and root, severing the firm filaments holding the main protecting part of the root asunder. Time and again patients have remarked upon the almost brutal "hammering into place" of the gold crown. They have been informed that this is essential to a good fit, and in consequence the dread of such an operation has militated against really necessary crowning, and deterred many from undergoing such an ordeal.

Witness the fitting of a band around the neck of a good, strong, healthy anterior root. Scarcely a patient emerges from this experience without evidence of bloodshed. Not that actual warfare has been waged between dentist and patient, but the gum at the neck of the root, being prepared (?), is so cut and lacerated, the pericementum has been so encompassed and severed, that several days are allowed to elapse so that the parts may "heal up," when the final insertion is made amid more groaning and renewed bloodshed.

The root being prepared—for what? For its crown, of course, the most obtuse would make response. But go a step beyond this and truly answer, for an earlier loss than would have been its portion if the surrounding tissues had not be ruthlessly maltreated.

Why is this stand against the all-band crown so vigorously taken? The attack is aimed at the indiscriminate use of the all-band crown upon the roots of the incisors, cuspids, and bicuspids when there is a much better and safer method. Two reasons are paramount. One is that the banding of teeth and roots is being carried to an unwarrantable degree, with resultant carelessness. Dr. J. A. Libbey, of the Pennsylvania State Examining Board, in a paper* read before the State Dental Association, pointed this out very clearly, and used diagrams to substantiate his assertions. The other is that nature never intended that the delicate membrane surrounding the root should be forced from it, much less be compelled to tolerate a knife-like edge or, as is more frequently the case, a blunt, jagged one. Force a thorn, and a minute one at that, into the flesh, straightway nature rebels until it is

* A Protest against some of the Barriers to Progress in the Dental Profession," July 13, 1899.

removed. Encompass one of the members of the body with a band or a ligature, and a shrivelling, a dwarfing of the part, is the result.

A mote in the eye has frequently led to disastrous consequences, and one cannot say that its lodgement in that delicate organ is not painful. One of the earliest methods of loosening teeth, previous to extracting them, was to tie a ligature around their necks, close to the cervical margin, and allow it opportunity to force its way up under the gums and render extraction *less painful*. What would be the comment of one's fellow-practitioners if such a method were employed at the present time?

It has been remarked, facetiously, that the mistakes of a physician can be buried under ground. Truly the dentist can bury his ill-fitting gold or platinum band beneath the gum.

It is safe for a season, but, like Banquo's ghost, it will not down, and after a precarious existence, in which inflamed gums, sore root, and an offensive odour from the intrenchment of food particles play their part, the dentist has the melancholy duty of finally removing root, crown, and all. The next essay is a "bridge," and when this double-crowned piece of mechanism has been swung across the vacant space, the trap is again set for more victims of the tooth family.

All dentists do not work on the lines just prescribed, but unfortunately, unless promiscuous crown-setting of the all-band variety is not sharply criticised and a ban put upon its incessant use, dentistry will degenerate into a profession of tooth-destroyers rather than of tooth-savers.

For a number of years the writer has been "keeping tab," so to speak, upon the crown and bridge work of certain dentists. He has witnessed the removal of bridges, of all-band crowns, and those of an analogous nature. With but few exceptions, the edges were either blunt or so sharp and jagged that knife edge or saw edge would very properly express the condition. In a number of cases, where a molar had been encircled, the lingual root had been attacked by decay, had loosened from its fellows, and was ultimately removed on account of its irritating presence, the gap felt being stopped either with amalgam or gutta-percha.

In one notable case, four gold crowns being involved both lingually and buccally, the cervical margins were a mass of dark, ill-looking amalgam. When asked why this was placed there, the reply was, "Because after the crowns had been in

use for a year, the food began packing under the gums, and the odour became positively frightful."

One reason advanced for such a condition of things is the ready-made crown of gold. The argument is, that it is impossible for the operator to look through the band and thus notice a want of snugness in the fit.

Good, so far as it goes, but, unfortunately, it does not go far enough. If every root could be so fashioned that the gold ferrule would be flush with the side of the root and not present a blunt or a feather edge, a greater degree of success would be the result, but, unhappily, no two cases are alike; patients differ as to ability to withstand pain, the grinding of the stone wheel, or the cutting of the root-trimmers, so, quite frequently, the root margins are not properly prepared; they flange, and the encompassing crown forms a pocket beneath the gums for the cultivation of bacteria and the subsequent decay of the parts. The manner of inserting a ferrule crown may receive a few comments with profit.

The common practice is to fill the metal shell with a soft mixture of oxyphosphate of zinc, then slip it over a section of tooth enamel, if any remains, and thence up upon the root walls, avoiding wounding the gums if possible. But more frequently the crown edge cuts through this soft tissue, and often a piece of it is held captive until it sloughs away.

The patient is told to close his teeth firmly, so that the shell shall be forced into place, or it is coaxed into position by a few taps of a hammer, after which the ferrule edge is burnished close to the root.

Unless great care is employed and the superfluous cement thoroughly dislodged, an angry, reddened gum is the consequence, and a general uneasiness about the root prevails, so that the patient is prone to make complaint. Cases have been noted, months after the insertion of a band crown, where pieces of the cement have been removed from the gums nearly at the apex of the root. Hence it is reiterated that, unless the greatest care and judgment are exercised, the setting of a gold crown or a banded porcelain crown is attended by grave results.

No doubt many will, with indignation, endeavour to refute the stigma placed upon their beloved hobby, for hobby it is, but if they will patiently and conscientiously go over crown by crown that they have set in the past years, employing a critical eye and sharp-pointed explorer, and then honestly state the result of their search, instead of indignation burning

their cheeks, the blush of shame will take its place at the lamentable state of affairs the result of their handiwork would divulge.

Time and time again has been observed a root, upon which a gold crown or a porcelain tooth, gold ferruled, has been fitted, loose and shaking in its socket. What excuse can a dentist offer when confronted with the fact that four gold crowns, which he had set with his usual skill, literally dropped out of the mouth, whilst the remaining teeth, as God fashioned them, were still immovable?

A gold band might hug the root, penetrating but a slight distance beneath the gums, without hurt, but most dentists are not satisfied with this; the further they can force the band upon the root the better, seems their ideal method of retention.

Without fear of contradiction, the claim is made that in many, many cases the gold crown just reaching the gum line will be more effective and less liable to unforeseen and annoying complications than the heroic method.

Proof is not wanting that this is so, and in a number of instances, when the whole root margin had been exposed for years, there was no decay, no odour, and no tenderness of the soft tissues. Cleanliness was the safeguard.

That history repeats itself is undeniable, and sometimes old-fashioned methods come into vogue again. The Logan porcelain crown was an evolution of the so-called pivot tooth. The Logan crown was doing excellent work when the Richmond crown and other ferruled affairs entered the lists. The original porcelain crown was retained in place upon the root by a plug of hickory wood. Frequently the root split from the swelling of this wood and the force necessary to insert it, and yet teeth so set performed excellent service for many years.

When the Logan crown, with its mental dowel fused into it, appeared, the splitting of the root was obviated in a great measure. This crown has been denominated the "lazy man's crown," because it is so *easy* to adjust. This is a gross misconception. The Logan crown requires more skill and patience to set than the crown with the gold band. And further, a Logan crown fitted to anything approaching exactness will, in the majority of cases, make a better appearance, preserve a healthier gum, and be a cleaner substitute than an exact (?) fitting gold crown. And again, a Logan crown set upon a root, the basic portion of the crown being smaller than

the root, will in almost every instance remain in good condition, with no decay or wasting away of its root support.

The fact may also be cited that a Logan crown, when it is fitted beneath the gum, works no damage, as does its fellow of the band variety. It simply rests upon the root, a line of cement giving close adaptation, and there is no encroaching upon delicate and vulnerable parts.

Cases are not wanting wherein a Logan crown and a metal crown have been set side by side, the former outlasting the latter and doing far better preservative work.

As to the root splitting when the Logan form of crown is used, this condition is often engendered by a lack of knowledge on the part of the dentist as to the proper preparation of the root-canal for receiving the dowel.

The late Dr. W. G. A. Bonwill* advocated preparing the root so as to allow the metal pin to fit snugly, and advised that there should be very little cement in the interior of the root between its walls and the dowel. This is the secret of a successful setting of such a crown.

If the root is prepared in an indiscriminate manner, and reamed out so that the dowel has plenty of play, the outcome is often a loose crown and frequently a split root. The best results are obtained by fitting the dowel into the root so that it will hold the crown securely and require some force to dislodge it; afterwards in the use of but a small amount of cement.

If possible, a shoulder of enamel should be retained at the lingual aspect of the root. This secures stability and is founded on firm principles, for tooth bone is vastly to be preferred than the strongest of porcelain.

Those entering the profession to-day know but little of the possibilities of the Logan crown. The crown with its golden circle fascinates them; in fact, its use is almost wholly taught them, and when once they get into the rut of making and using crowns possessing such an attribute, the rut grows deeper and deeper until it is impossible to see over either side of the furrow, and they are shut in completely.

Revive the Logan crown, or crowns of a similar nature, for the anterior teeth at least, and note the results when placed in comparison with the sharp-edged, vicious shell of gold or modifications of the same.—*Dental Brief*.

*See American System of Dentistry.

A TALK ABOUT TEETH.

In the Science column of the *Scotsman* appears the following :—

One of the most interesting and instructive methods of acquiring a knowledge of the structure and habits of animals is to take a single part or organ and compare its form and function in as many different creatures as possible. By this plan the novice cannot help being struck with the great amount of diversity displayed in the various types of being he thus compares. He will also doubtless be much impressed with the wonderful correlation which he will find to exist between structure and use, the same organ being most beautifully adapted by a more or less pronounced departure from its primitive form to serve a purpose equally foreign to that which it originally fulfilled. Now, in the highest class of animals—namely that of mammals (or more popularly, but not so correctly, quadrupeds)—no structure or structures seem to be so diversified in either form or function as the teeth. A brief and elementary sketch of these organs, as modified in the various animals of this class, should therefore furnish an excellent lesson in comparative anatomy, as this method of study is called. In order to properly understand and appreciate the various modifications of teeth, a preliminary acquaintance must be made with their general structure. As everyone knows from painful experience, all teeth are firmly fixed into the jaw by one, two, or more roots. The portion of the tooth exposed above the gum is called its crown, and as a rule the more complex the crown the greater is the number of roots. According to the general form of the crowns and roots of teeth, but especially taking into account their position in the jaw, we may divide them into four different kinds. Starting from the front and taking the upper jaw first, we must first of all point out an important fact, which assists materially in deciding the nature of the teeth in certain doubtful cases. The upper jaw is composed of two separate bones, and the line of junction between them is always used to separate the front teeth, which are called incisors, from the others, whatever their shape. The number of incisor teeth seldom exceeds three on each side of the

middle line and immediately behind them a single usually long and pointed tooth, called the "canine," is generally present. Next follows a variable number of teeth with the crowns more or less adapted for crushing, and hence called molars or grinders. These, again, can be separated into premolars, or those which are represented in the first, or "milk" set, and behind these the true molars, which are without predecessors. Judging from the number of teeth of various kinds present in the different groups of mammals, both living and extinct, zoologists have come to the conclusion that the generalised form of dentition consists altogether of forty-four teeth—namely, eleven on each side of the upper, and the same number on each side of the lower jaw. In each of the four corresponding series of eleven teeth there are three incisors, one canine, four premolars, and three true molars. Very few existing mammals are supplied with the full set thus enumerated, but those familiar creatures, the pig and the mole, are examples.

If a tooth be carefully cut down its middle it will be noticed that it is not homogeneous in structure. Three distinct kinds of substance, in fact, enter into its composition. The bulk of the tooth is made up of a material called dentine or ivory. To the naked eye this appears as a yellowish-white substance with a silky or even iridescent lustre. Under the microscope it resolves itself into a number of very fine, branching and almost parallel tubes, which run from the centre of the tooth towards the surface. On the crown of the tooth the dentine is protected by a layer of bluish-white substance called the enamel. This is fibrous in structure, and far exceeds in hardness any other animal substance. Externally is a third layer, sometimes only found upon the root, of a substance very similar in both structure and appearance to ordinary bone. This is called the cement, and in a tooth of complex structure it often fills up the spaces between the folds of the enamel. Lastly, in the interior of a young and still growing tooth is a cavity filled with a soft pulp, in which are the blood-vessels and nerves serving to keep up the vitality and growth of the tooth. This pulp-cavity may eventually become almost closed up at the base, but in teeth which continue growing during the whole life of the animal, as, for example, the tusk of the elephant, it necessarily remains open. When the tooth has more than one root, as is usually the case in the premolars and molars, the pulp-cavity is branched,

sending a canal down each root, and by this means the nutrition of the tooth is rendered more efficient.

After this preliminary sketch of the form and structure of teeth in general, the various groups of mammals may be considered seriatim, with a view to learning how these organs are modified to suit various purposes. At the lower end of the series is the peculiar egg-laying mammal of Australia and Tasmania, known as the Platypus or Duck-bill. This animal is altogether devoid of teeth in the adult state. As the scale is ascended the great group of marsupial or pouched mammals is next met with, which includes such well-known forms as kangaroos, opossums, bandicoots, and phalangers. The most interesting fact in connection with the dentition of these animals is that there is only a single milk-tooth on each side, above and below, which sometimes remains in use until the animal is full grown, while at others it is shed before any of the other teeth are cut. This unique milk-tooth corresponds to and is replaced by the last or hind-most premolar. Kangaroos, phalangers, and their allies are chiefly vegetable feeders, and, in accordance with this fact, their incisors never exceed three on each side, the two central ones—*i.e.*, the first on each side—being large and adapted for cutting, while the canines are quite small, or even absent. The dentition thus resembles to some extent that of the great group of rodent or gnawing animals, like the rat or mouse, which also are exclusively herbivorous. The mammals of the next order, known as edentates, are either entirely without teeth, as their name implies, or if these are present they are of a very uniform character, and hardly ever preceded by a milk set. The most familiar animals belonging to this order are the sloths, ant-eaters, and armadillos. Again we meet with a remarkable correlation between the nature of the dentition and the feeding habits. In the sloths, which feed upon leaves and young shoots, the few teeth which are present are sharp-edged, and thus adapted for cutting and chopping up their food; while in the armadillos, which are omnivorous, the teeth are numerous and of simple structure. On the other hand, the ant-eaters, which capture the insects they feed upon by means of an unusually long and sticky tongue, are absolutely toothless. The curious aquatic mammals known as dugongs and manatees, representatives of another order, feed entirely upon seaweeds and other aquatic plants. Hence they are not provided with canine teeth, which are so characteristic of flesh-eating animals.

In the next order of mammals, known as cetaceans, are included whales, dolphins, and porpoises. In these purely aquatic animals the teeth vary so much in their nature that it will be necessary to treat of the most familiar members of the order separately. In general, however, it may be said that teeth are usually present, and that they are very uniform in character, often of a conical and pointed shape, with single roots, and never preceded by a milk set. They are thus eminently suited for securely holding slippery fish, upon which many of the species feed. The true whales, from which whalebone is procured, never possess teeth after birth, but in the pre-natal state a number of minute ones stud both jaws. The sperm whale, on the other hand, possesses from twenty to twenty-five teeth on each side of the lower jaw, while in the upper, such as are present, are only rudimentary, and remain covered by the gum. Other whales, again, possess only a single tooth on each side of the lower jaw, while dolphins and porpoises have a considerable number both above and below. In the common dolphin they are conical, sharp-pointed, and somewhat curved, but in the porpoise they are peculiarly enlarged at the tip, or spade-shaped. The most remarkable member of this order is the narwhal, which is familiar to many of us on account of its long, spirally-twisted tusk. This remarkable tooth is the only one that the animal possesses, and its use does not appear to be known with certainty. It may serve as an offensive and defensive weapon, and this theory seems to be strengthened by the fact that the female is destitute of such a tooth—a parallel case to that of many other animales with fighting males. This formidable implement represents the left of a pair of teeth, the right one of which remains hidden in the jaw, though sometimes developed to an equal extent with the left.

We now reach a large order of mammals known as ungulates or hoofed animals. This group contains a great number of very familiar animals, among which may be mentioned the hippopotamus, pigs, camels, deer, the giraffe, sheep, cattle, tapirs, horses, rhinoceroses, and elephants. All these beasts are more or less vegetarian, and hence their dentition is of a type adapted for cutting or tearing off and crushing vegetable matter. The premolars and molars have broad crowns, whose services are either ridged or provided with tubercles. The canines, so useful to carnivorous animals, are here only exceptionally of any considerable size, and in many cases they are quite absent from the upper jaw. The first or milk set is

usually well-developed, and, as a rule, the animals of this order do not obtain their full set of permanent teeth until they are full grown. Some ungulates are distinguished as true ruminants—that is to say, simply, they chew their cud. All deer, cattle, sheep, goats, and antelopes, belong to this section, and in them the upper incisors, and sometimes also the upper canines, are absent, the corresponding teeth of the lower jaw biting against a hardened pad in the upper. Two animals in this class are so remarkable that they cannot well be omitted. The first is a relative of the pig, called the babirusa, and a native of the islands of Celebes and Buru. In this animal the canine teeth are wonderfully developed, both pairs growing upwards and backwards in a curve which reaches nearly to the eyes. The use of such remarkable teeth does not appear to be very evident, and the explanation that they serve to protect the eyes while the animal is groping in the dense thicket for its food, though plausible, is not quite satisfactory. That they serve this purpose at the present day is, no doubt, the case, but when it is remembered that the females are without tusks, it cannot be believed that such was their original object. More probably, as Wallace suggested many years ago, they formerly were of use as tusks, but owing to changed conditions of life they are no longer needed, and, therefore, are not worn away, as in former times, either by fighting or grubbing for food. Sometimes they grow to such an extent as to pierce the skull and enter the brain, thereby causing the death of the animal.

The other example chosen to illustrate the peculiarities of dentition in this order of mammals is that of the two existing species of elephant. These huge creatures are familiar to every one, and the enormous tusks which they usually carry form not the least striking feature in their general appearance. These useful appendages are really the incisor teeth, and only a single pair of these is developed, those of the lower jaw and the canines of both jaws being quite absent. There are three premolars and three true molars on each side of the upper and lower jaws, and these are of remarkable structure. They are ridged transversely with plates of dentine covered with enamel, and those of the Asiatic species differ materially in appearance from the corresponding teeth of its African relative. The two species also differ in the fact that the female of the Asiatic elephant is without tusks, while in the Ethiopian they are present in both sexes, and also proportionately larger. It must not be omitted to mention, too,

that these enormous incisor teeth have a persistent pulp-cavity, and hence continue to grow during the entire life of the animal.

The great order of rodents, or gnawing animals, includes nearly a thousand existing species, and among them may be numbered the familiar hares and rabbits, rats, mice, squirrels, beavers, porcupines, and guinea-pigs. All these creatures obtain their food, which is of a vegetable nature, by gnawing, and their teeth are remarkably adapted for that purpose. In all the members of the order except hares, rabbits, and the picas, or tailless hares, there is only a single pair of incisors in each jaw, and these have persistent pulps, so that they are of continuous growth. Moreover, since the enamel is confined to the front surface, the softer dentine behind wears away more rapidly, and by this simple arrangement the teeth always have a sharp, chisel-like edge. No canine teeth are present in any rodent, and between the incisors and the cheek-teeth there is always a wide gap, which is very characteristic of these animals. If any of the incisor teeth become broken or drop out, the opposite one, being without the usual resistance, grows to an inordinate length, and in so doing follows its usual curvature until sometimes a complete circle or even more is described. Occasionally a piercing of some part of the skull takes place similar to that which occurs in the *babirusa* alluded to above. In hares, rabbits, and picas there are at birth three pairs of upper incisors, one of which soon disappears, and in them the enamel partially covers the posterior surface as well as the front.

Coming now to the fierce, carnivorous mammals, such as the cat, dog, lion, tiger, wolf, fox, bear, otter, seal, and walrus, it will be found that the dentition is well adapted for a flesh diet. First of all must be noticed the well-developed canine teeth, which are sharp pointed and re-curved, while the small size of the incisors allows the former to project considerably; thence a firm hold can be taken of the struggling prey. Recent carnivores can be divided into two groups, according to both their habits and structure. Those of the first group are mainly terrestrial, and merit more particularly the name of true carnivores. In them one of the teeth in each half of the upper and lower jaws is specially modified for dividing and cutting flesh into small portions, and it is hence called the carnassial or sectorial tooth. In the upper jaw it is the last premolar that is so modified, while in the lower the first true molar forms the carnassial tooth. The typical form of

this useful and characteristic tooth of carnivorous animals is that of a sharp compressed blade with either two or three lobes, supported by two roots, while on the inner side is a tubercle having a separate root. In the second group of animals belonging to the present order are included only the eared seals, the walrus, and the true seals, which, of course, are aquatic. They differ from members of the first group in the absence of any special carnassial tooth, while the cheek teeth are remarkably uniform, and have conical and pointed crowns. Such differences in the teeth would be difficult to understand were it not remembered that these animals subsist largely upon slippery fish, so that here again is another remarkable case of adaptation. In spite of their distance, zoologically speaking, from such animals as dolphins and porpoises, which also prey upon fish, there is here a distinct approach to them in the character of the dentition, although, at the same time, the carnivorous pattern is still easily recognisable. The upper canines of the walrus, which are developed into huge tusks, must not be forgotten as an instance of special modification.

The remaining orders of mammals must be dealt with as briefly as possible. The insectivorous animals, such as moles, shrews, and hedgehogs, have a characteristic dentition, in which the molars have their crowns armed with sharp cusps, while the canines are small and the incisors conical. The teeth are therefore well suited for crushing the hard external parts of insects, which form the main article of diet in this order. Bats, which form the next order, are either insectivorous or frugivorous, and their teeth are correspondingly modified. In the insectivorous forms the molars have sharp cusps and transverse grooves, resembling those of the last order, but in those which feed upon fruits the crowns are smooth, with a longitudinal groove. Finally, the highest order of mammals, which includes lemurs, monkeys, and man himself, alone remains to be considered. In these highly organised animals the dentition does not present the pronounced characters to be found in some of the lower orders, the only point demanding attention being the large size of the canines in some of the forms. As the scale is ascended the teeth become more uniform, so that when the human species is reached it is found that they are all very much the same size, even the canines being much reduced and very

similar to the incisors. In this order there are usually two pairs of incisors and three pairs of molars in each jaw. The latter are somewhat more complex than the premolars, of which there are usually either two or three pairs above and below.

P. H. G.

DENTAL JURISPRUDENCE.

By F. M. LUDBROOK, L.D.S., R.C.S. ENG.

There are many books on medical jurisprudence. Taylor, Ogston, Tidy and others have written at great length, but I am not aware of a single volume that deals with the subject in our own special department.

The books above referred to treat elaborately of the legal aspects of all such medical cases as can possibly have to do with a court of law—that is, matters of forensic or legal medicine.

That there is a legal aspect of the operations performed or refrained from by him is ever and anon impressed upon the dentist. In a word, the mouth, which is his peculiar care, and is a witness to his work, may testify in a court of law, as well as elsewhere. I take it, then, that anything that has to do with ourselves, the patient, and the lawyer, is in order to-night. We are not fond of the law; still, apparently compromising events and difficulties may happen sometimes. There may be men in active practice who have never had a vision of the law courts and what might happen there; men who have never had the blackmailer practising his arts upon them. I suppose, however, these cases are few and far between. It is all very well to talk of doing one's work properly, and nothing can happen. I do not believe it. Our patients are of all sorts and conditions of men and women, with diversity of temperaments, whose ideas as to what should be done for them are sometimes amazing.

Let us now take a few illustrations for consideration. First, the very plaster of the workroom may be available for judicial work. A model of the mouth, for purposes of identification, is as good as the impress of the thumb, and the various body measurements that are so much in vogue in legal evidence. We all remember the Paris disaster, in 1897, at the annual celebration of the "Bazaar de la Charité," held in a building constructed of such flimsy materials as wood, tarred cardboard, and painted canvas. The fire broke out in the cinematograph apparatus, and caused the death of over 130 persons, case after case of charred remains being only identified by means of the mouth, clothing and all external signs of recognition having been removed by the fire. Perhaps it would be a wise thing for us to preserve models of our patients' mouths, and it might be a good thing to popularise the idea that all should have casts made of their mouths. Such a practice, if the models were consecutively numbered and duly registered for reference, might have its value even in the catching of a criminal.

I am not to-night talking of cases in which the patients have been really wronged. Unfortunately there are such cases, although we are glad to believe them a fast diminishing quantity. Booms in cocaine and crowns and bridge work tempt the designing man to impose on the ignorant patient. Tomes, you will remember, begins his treatise on dental surgery with quiet remarks on "teething," but ends it with the words "victimised patient," reminding one of the marriage service beginning "dearly beloved," and ending with "amazement."

But we are now to note cases wherein the patient has a sense of having been wronged.

"You have taken out the wrong tooth," is the cry. The tale of woe has been told all round for a day or two since the extraction, and then, in a climax of wrath, it is hurled at your head. In vain you say you removed the one the patient pointed out, which deserved to come, and which you extracted skilfully. The toothache remains, and you are judged accordingly. How can you stay this lovely advertisement? This is truly an age of advertisement, but we would rather draw the line at such publicity. It might be useful to preserve the extracted tooth in these cases, and, at the same time, warn the patient that others want seeing to, and that he or she alone will suffer if they are neglected.

Another similar case is one with which we are all familiar :

"You have broken my jaw," when it may happen that a small part of the alveolar process of the jaw has, perhaps, come away with the tooth.

Then there are cases which must sometimes be undertaken of an experimental order which invite discussion and demand careful diagnosis. There is, for instance, the locating of a buried tooth, and for some sufficient reason an attempt is made to remove it. What if you are unsuccessful in your removal? What if there be no buried tooth after all?

To give the kaleidoscope of possibility and actuality another turn. There is the achieving too much as well as the failure to achieve. In the case of the removal of a second molar, for instance, sometimes the wisdom tooth may come as well. What, then, is best to be done? Again, a cicatrix interferes with free play of the lower jaw. You diagnose an impacted lower wisdom tooth, you attempt to remove that tooth and fail. The unfortunate sufferer has, or asserts she has, the agony tenfold increased.

I give you another case of a patient damaged deeply in her feelings through a *bona-fide* misunderstanding on both sides. A lady in middle life, with a left upper lateral incisor very badly decayed marginally, and abscessed, fairly loose, in a bath of pus. She "had been in such pain with it, and would you please use something to numb it?" A local anæsthetic was applied; the tooth was extracted with complete success. Judge the amazement of the dentist when the patient said: "Why, you have EXTRACTED it!" The tooth had been so obviously asking for extraction, that nothing else would have entered the head of any sane dentist. The patient lost her tooth, but kept her cash; the dentist let it go at that, but he lost his patient. How would that come out in a court of law? Might we not learn dental prudence, and have a habit of naming an operation to the patient before starting out upon it?

In the case of a new patient, it is my custom to indicate what the fee will be for work to be done. It is wonderful how deaf or forgetful a patient may be, and when all is over, and the patient "did not expect it would come to so much," what is a man to do?

Here is another case more or less familiar—one of secondary hæmorrhage. At night time the dentist in his distant suburban home is sleeping the sleep of the just, dreaming maybe of influenza of the teeth, or some such luxury, on coming to town. The patient is in another suburb, not

sleeping by any means. The doctor has to be sent for to stop the flow of blood, and there is a great to-do in that house. Is it a fair thing that the dentist shall receive a "slamming" for that, and doctor's expenses be expected from him?

By the way, as to fees. How do we generally regard the charging of fees for attending medical men and their families? I take it this is a matter for individual determination just as with one's relatives.

What is the law in regard to anæsthetics in Victoria? The papers the other day gave the death of a young lady, due to a dental operation performed some six months ago, from the effects of which she never fully recovered. One wonders if that were an anæsthetic case, and if so, whether local or general? With such meagre information given by the papers, is it fair to say death was due to the dental operation only?

In England, I believe, the law has never recognised anæsthetics—has never allowed them, never forbidden them. Anyone can administer them—layman, nurse, dentist, or doctor; but in case of mishap, must satisfy the jury as to a knowledge of them, and show that precautionary measures were taken, and that the earlier symptoms of misadventure were recognised and treated.

Other things being equal, one administering an anæsthetic for the second time is likely to come off better with a jury than if for the first time. Experience tells. Does the same rule obtain out here? With regard to the use of chloroform, it is a point as to *whether we are justified in using it for any dental operation.*

Finally, we come to the case of the blackmailer pure and simple. Of course, a good name is to be chosen rather than aught beside, but it does not seem to me that this will make us absolutely bullet-proof. Can we risk ever being in the operating room alone with a patient? Certainly, the risk is reduced to a minimum with the waiting-room very close, with open doors, and other people to and fro all through the house.

These simple little illustrations might be multiplied, but while art is long, life is short, and I would conclude by saying that a man does well to conduct himself with care and candour and prudence in things dental.—*Australian Journal of Dentistry.*

Dental News.

DENTISTS' SALARIES AND THE COMMON POOR FUND.

The Local Government Board wrote to the Board of the Central London School District stating that they were prepared to assent to the salaries of dentists being charged upon the Metropolitan Poor Common Fund. The letter intimated that, so long as it was the exception rather than the rule for Managers to appoint dentists, the Board felt that it was not equitable that the salaries should be paid from the fund. They were pleased to note, however, that the employment of those officials was now general, and, under the circumstances, they considered that there was no reason why the expenditure should not be met by the fund. It was added that the remuneration should be by salary in preference to fees.

The Clerk stated that the Hanwell Managers had engaged a dentist for some years. His salary had not been charged upon the Common Poor Fund, and possibly the Board would see fit to make an application that it might be in future.

On the proposition of the Chairman, it was agreed to make application accordingly.

A subsequent communication from the Local Government Board approved of the reappointment of the dentist.

THE "DAILY NEWS" AND LAUGHING GAS.

A case occurred recently of death under "laughing gas." It was found at the inquest that death was due to natural causes, the gas having been administered in the last resort, with a view to an operation that might prolong a life certain to end within a few hours. So that nervous people need have

no fear of the dentist's anæsthetic on this account. There are some who have a natural and unconquerable horror of losing consciousness in this way, and refuse to be treated with chloroform or anything having the same effect even for comparatively severe operations. But those who regard the abolition of pain in surgery as one of the greatest blessings ever conferred by science may regard laughing gas as one of the safest and simplest of anæsthetics. Its only drawback is that its effects are so quickly overcome that it can only be used in the shortest of operations. A patient seldom loses consciousness under it for much more than half a minute. Dentists have an idea that they can extract a tooth in that short space of time, and in a majority of cases possibly they can; but many readers will perhaps be able to testify to untold agonies suffered under the forceps in spite of the delusive gas to which they had surrendered themselves. Like most improvements in connection with dentistry, laughing gas, more severely known as nitrous oxide, came to us from the United States. Horace Wells, of Hartford, Connecticut, assured himself of its anæsthetic value, and made an experiment upon a patient. But the patient roared so terribly with pain that Wells was discouraged, and is said to have killed himself. The gas was for a long time discredited, but afterwards was taken into universal use in dental surgery, and "painless extraction" has become, like all the wonders of our era, a commonplace matter, which we can scarcely imagine the world without.—*Dental Record*.

KNOCKING A GIRL'S TOOTH OUT.

Eliza Sparks, of Pinxton, at the Alfreton Sessions, was summoned for knocking a tooth out of Minnie Louisa Lee's head, a little girl living at Selston.

Mr. W. M. Wilson, who represented the girl, told the Bench that there was a feud between Sparks and the girl's father, in consequence of the latter, who was her former landlord, having to remove her. On the 30th of September the girl, who went to Pinxton School, was waiting for a play-

mate, when the defendant went up to her and knocked her head against the wall, inflicting the injury named.

The girl, Lee, who was only 12 years old, then detailed how she lost her tooth.

Maria Simpson, in whose house the assault took place, corroborated, as well as Florence Simpson, and the child's father.

The defendant was fined £1 7s.

VICTORIA DENTAL HOSPITAL, MANCHESTER.

DISTRIBUTION OF PRIZES.

The distribution of prizes in connection with the Victoria Dental Hospital took place at the hospital, Devonshire Street, All Saints'. In the absence of Dr. J. J. Cox, who was detained in France, Mr. W. Headridge occupied the chair. Prior to the business of the meeting an entertainment was provided by Mr. J. L. Wyman in the way of some smart conjuring and ventriloquism.

Mr. William Simms submitted a report, which stated that another year of quiet and steady progress had to be recorded in connection with the educational work of the hospital. The rooms added to the hospital just over 12 months ago had proved of the greatest advantage, and as five other rooms were now being prepared for further addition, they would have a very creditable provision of rooms for temporary hospital requirements. The development of the Dental School, and the increase year by year of the work of the hospital was in accordance with the prognostications of the dental staff, who steadily kept before their minds the necessity for the erection of a building adapted to modern requirements for dental teaching. Fifteen years ago the Victoria Dental Hospital received its first two students. Last year the number on the books was 47. Of this number two completed their studies in May, 16 in September of this year, and one student had given up dentistry and retired. The entries this

year had been 11, of whom one was an entry in the Prosthetic Department. They commenced the present winter session, therefore, with 40 students. During the year 10 students had passed the final examination for the L.D.S. Eng., and one for the L.D.S. Edin. The somewhat higher standard of general education exacted from January, 1900, by the General Medical Council of Dental Students had had the effect, apparently, of diminishing the number of dental students registering. In 1899 the number registered at the office of the General Medical Council was 260, while in the year 1900 the number was 174, the lowest number registered in any one year for 10 years. A noteworthy feature of the work of the hospital had been the great increase in the operations for the conservative treatment of the teeth. While the number of "extractions" remained practically the same, the number of patients and the number of operations for filling and crowning had gone on increasing year by year. Last year the number of fillings was 5,351, of which number 1,458 were gold fillings. The total number of cases for the year was 19,244, and was the highest number recorded since the opening of the hospital. The prosthetic department for supplying artificial dentures continued to make every progress. Last year, which was the first full year of its operation, 70 dentures were constructed. This year already 85 had been made. This department of work continued to receive the careful consideration of the dental staff. The following were the prize winners:—Fletcher prizes—Senior, J. Ambrose Whitaker, W. A. Wayte (prox. access.). Junior, G. W. Barlow. Operating prizes—J. Leslie Modge, A. S. Hodgson (prox. access.). Ash prize—J. H. Rodway. Regulating prize—J. Ambrose Whitaker. Extracting prizes—Senior, W. A. Wayte; Junior, J. H. Rodway. Prizes in prosthetic dentistry—Senior, F. Rawsthorne; Junior, S. Harlock. Owens College prizes—Dental surgery—J. Leslie Hodge. Dental Anatomy, J. Leslie Hodge. Operative dentistry—First prize, J. A. Whittaker; second, T. Dykes. Mechanical dentistry—First prize, P. Burns; second, G. W. Barlow. Dental Metallurgy—J. H. Rodway. Dental Histology—J. F. Bentley.

Professor Young, in addressing the meeting, spoke of the amount of study required from a dental student. There were, he said, no less than six special classes, or laboratory courses, which the dental student must attend, and it was gratifying to note that most of the people to whom these

special courses were entrusted were former students of Owens College. He went on to say that the Victoria Dental Hospital had both justified its existence and established a strong claim to the confidence and approval of the citizens of Manchester by reason of the admirable work it had done. He then distributed the prizes, after which votes of thanks to the Chairman and Mr. Young were passed.

ACTION AGAINST A DENTIST.

The record was closed in an action raised before Lord Kincairney in the Court of Session, Edinburgh, at the instance of Alexander Douglas, 63, Gellatly Street, Dundee, against John Cassaday, dentist, 89, Murraygate. Pursuer, as tutor of his son, four or five years of age, claims £750 as damages in respect of personal injuries sustained by that child on 26th April last. The child had been in Horse Wynd, and was burned by phosphorus. He was taken to the Infirmary, and remained there till 30th May, and parts of three fingers were amputated. Pursuer attributes blame to the defender on the ground that the material had been thrown carelessly from a window in defender's premises, and that it fell on the child and set fire to his clothes. Defender denies this, and says it was lying on the street, and the child was playing there and meddled with it. He had been felt to wander home, and was not in charge of any one at the time. The material had been left in defenders's premises by an apprentice, but was afterwards thrown out. It was not there in connection with defender's business, but for the private purposes of the apprentice. Issues were ordered for a jury trial.

As the American Eagle proudly flaunts over the premises of a Sandown dentist, the Registrar naturally thought he was an American, and objected to his vote on the ground that he was an alien, and was obliged to pay "exes" when the "American" declared before the revising barrister that "he was a Cockney born and bred"—Moral: things are not always what they seem—not even American dentistry.

ACTION FOR DAMAGES.

George C. Smith, dentist, of 153, High Street, Lewisham, was summoned on Tuesday, at Greenwich Police Court, by Charles Alfred Geen, architect, of 156, in the same street, for damaging his brass plate. Complainant said that in the beginning of the month he put up a brass plate on two posts in his forecourt—the premises adjoining. The plate was removed by order of the defendant, who sent it to him by a boy. He admitted that he had received a request from the Lewisham Borough Council to remove the posts, but he had not done so as the Council were under a misapprehension in thinking that the ground was dedicated to the public. Defendant had put up his own board and then coolly removed his (complainant's) plate. Mr. John Carline, the Borough Council's surveyor, said that one of the posts on which Mr. Geen had placed his plate stood on a piece of ground which had been given up to the public. The magistrate (Mr. Bagally) thought it was a case for the County Court, and the summons was withdrawn.

SOME of our latest glimpses of the Ameer are supplied by Mr. O'Meara, who visited him in the professional capacity of a surgeon-dentist in 1887. Mr. O'Meara tell us that Abdur Rahman complained in burbar of the difficulty there was in getting in the revenue. "One quarter of the money," said the Ameer, "which is rightly mine, I get without trouble, one quarter I get by fighting for it, one quarter I do not get at all, and those who ought to pay the fourth quarter do not know into whose hands they should place it." The set of artificial teeth which Mr. O'Meara made for his illustrious patient have since helped to impress untutored Afghans with a becoming sense of their ruler's power. Dr. Gray, who was afterwards in medical attendance on Abdur Rahman, relates that when the Ameer held his court at Mazar-i-Sharif he would sometimes remove his teeth in the presence of his

lieges, clean and polish them with a brush, and solemnly put them back again. All who beheld this marvel, more especially if they happened to be simple villagers or uncouth hill men, would look aghast at the great Monarch who could thus take himself to pieces before their very eyes.

DENTAL PROSECUTION AT BLAENAVON.

At the Blaenavon Police Court, before Messrs. W. Edwards, C. White and T. Williams, Alfred Ernest Williams (25), was summoned for unlawfully styling himself "dentist" whilst not registered as such, at Blaenavon, on July 23rd. Mr. Lyndon Moore, Newport, prosecuted; and Mr. Harry Parry, Blaenavon, appeared for the defendant, who admitted not being registered, but denied having represented that he was qualified.

Mrs. Bryant, Clare Road, Cardiff, stated that on July 23rd last, while on a holiday at Blaenavon, she called at Mr. Bromfield's, a local chemist, where she saw defendant. She asked if he could prescribe anything for toothache, and he recommended her to have the tooth taken out, representing that he was a dentist with ten or twelve years' experience. She had it extracted, and paid one shilling for the operation. The following day she called to have a new tooth fitted, in company with a male friend, who also desired to have some teeth removed, but in the course of the conversation defendant said that he had not passed his examination. She allowed defendant to fit a plate, for which she paid 5s. Cross-examined: She was not asked to come to Blaenavon especially to have the tooth extracted, and the prosecution was instituted by her husband.

William Morgan, Pontnewynydd, said that he went with last witness on July 24th to Mr. Bromfield's shop and saw Mr. Williams. In reply to witness, defendant said he considered he was a qualified dentist, as he had ten or twelve years' experience, but had not been fortunate in passing the examinations. Witness did not have any teeth extracted for the sole

reason that his "nerves failed him," and not because he was dissatisfied with defendant.

Defendant (sworn) stated that he carried on business as an artificial teeth specialist with Mr. Bromfield. He had served an apprenticeship, and had had long experience as a fitter of teeth. He told Mrs. Bryant that he was not a qualified dentist, but that if she wanted a tooth out he would take it out and could fit another for her.

The Bench decided that defendant was not guilty, and dismissed the case.

ACTION AGAINST A TOOTH SPECIALIST.

A lady shop assistant recently purchased for £3 a set of false teeth from A. Marco, "tooth specialist," carrying on business on the south side of Glasgow. The teeth, however, proved a misfit and she suffered inflammation of the gums to such an extent that for a time she had to give up work. Despite the fact that the dentist made efforts to give his customer more comfort with the teeth by altering them in one way or another, the desired result was not obtained and the lady ordered a new set from another dentist.

The sequel to these proceedings appeared in the Glasgow Small Debt Court in the shape of an action for £T—the price paid for the teeth—and £4 5s. for medical attendance rendered necessary by the state of the pursuer's mouth, and for loss sustained while she was compulsorily absent from business.

Defendant stated that pursuer asked for a set too soon after her own teeth had been drawn. He advised her to wait until her gums had hardened, and in the meantime supplied her with a temporary set.

Sheriff Mair has now issued judgment, awarding the pursuer £3 8s., and expenses.

Dr. Brubaker, a German physician, declares that 72.5 per cent. of dyspeptics have unsound teeth.

OBITUARY.

We regret to have to record the sad death of Thomas Lay Fairweather, of Stroud, whose body was found in the Gloucester and Berkeley Ship Canal on a Sunday afternoon recently. Mr. W. B. Arnold, of Gloucester, who was cycling along the canal side on Sunday afternoon, saw deceased, and assisted to raise the sail of the boat, as Mr. Fairweather was experiencing some difficulty with it. About an hour later when he returned, he noticed the stern of the boat above water, about fifteen yards from the bank. A boat was obtained, and the body was recovered from 16 feet of water. The Rev. Edward Hugh Hawkins, Vicar of Holy Trinity, Stroud, stated that deceased had recently purchased the boat in question, which, in witness's opinion, was too small for sailing. Deceased was not an expert sailor, and could not swim. Matthew George Boucher, a lad who sailed as far as Paothorne with deceased, and George Holder, the bridgman, having given evidence, the jury returned a verdict of "Accidentally drowned."

Mr. Fairweather had practised at Stroud for many years and was much respected. He leaves a widow and family to mourn his loss.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed Correspondents.]

To the Editor of the "British Journal of Dental Science."

Dear Sir,—In your current number, page 958, I see that Dr. J. L. Williams has patented a method of crowning, and describes the appliances pertaining to the method. I have seen cuts of the accessories to this method and would say, in October, 1898, I had a case of a badly split incisor root which I was desirous of saving. To this end I made an

identical tool as described (and illustrated elsewhere), and for the same purpose constructing the crown on identical lines as described in the notice of the patent. The result from a mechanical standpoint was a success; from the patient's standpoint barely so, as I failed to secure the partially split off portion of the root, the said portion shortly having to be removed, and another method resorted to, which up to the present has remained comfortable and efficient. The method described has many features to commend it. The validity of the patent is a matter quite outside this communication.

Yours truly,

W. MITCHELL.

39, Upper Brook Street, W.

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2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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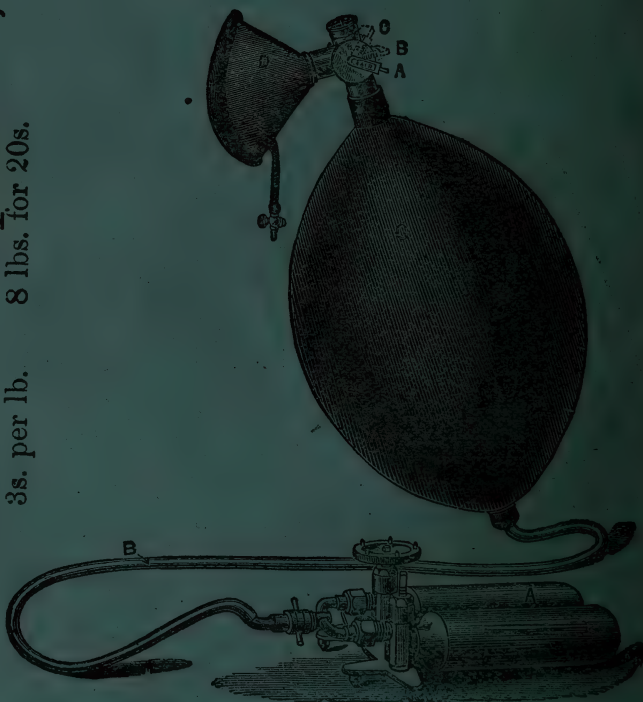
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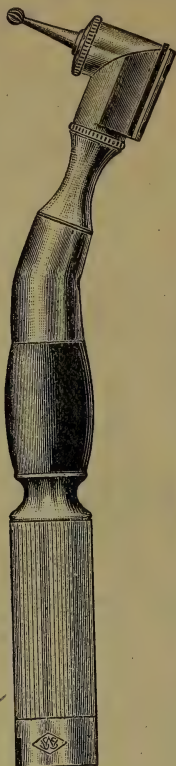
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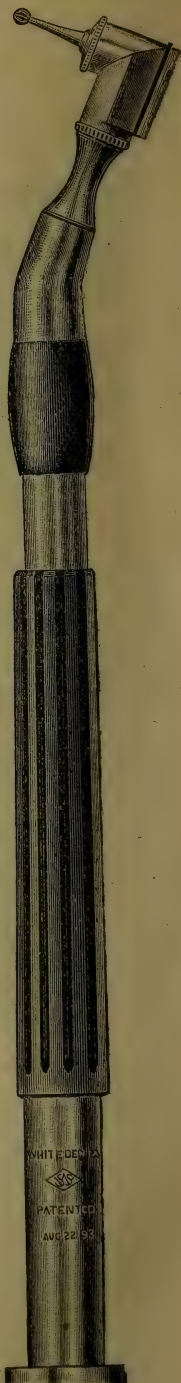
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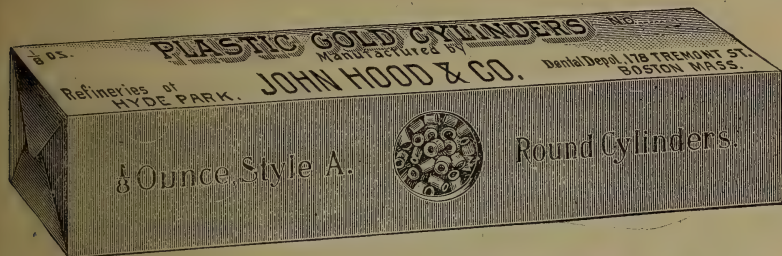
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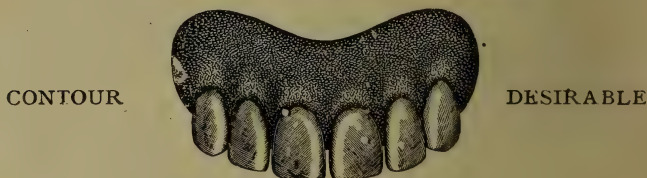
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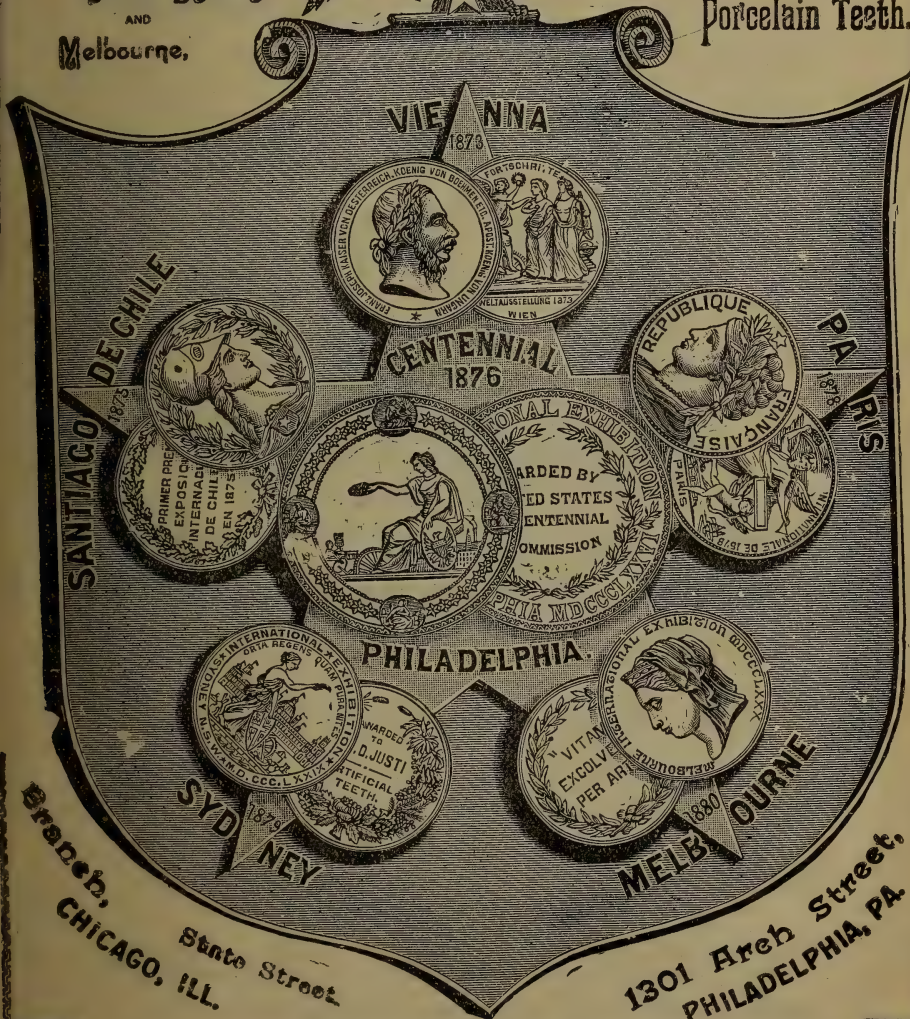
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NOTES ON THE DENTITION OF THE SPHENODON.*

By W. A. MAGGS, L.R.C.P., M.R.C.S., L.D.S.Eng., and
J. LEWIN PAYNE, L.R.C.P., M.R.C.S., L.D.S.Eng.

It may perhaps interest the members of this Society if, before describing the dentition of the Sphenodon, some brief account of the animal be given, including its position in the zoological scale, its structure and habits. At the onset we wish to state that we do not claim originality in our notes, inasmuch as the monographs of Günther, and of other writers, describe fully most of the facts narrated by us. However, we hope the specimen itself, the microscopical sections of the jaws and teeth, the micro-photographs and our own conclusions will be received by you as a slight contribution.

Distribution.—The *Sphenodon punctatus*, *Hatteria punctata*, New Zealand lizard, or Tuatara of the Maoris, is the sole living representative amongst reptiles of the order Rhynchocephalia, and is now rapidly becoming extinct. Not long ago large numbers were found near the coast on the Eastern rocks of the Northern Island of New Zealand; but

* Published in the Transactions of the Odontological Society of Great Britain.

in later years having been used for food and scientific purposes, as well as being largely destroyed by the introduction of pigs into the country, the species is almost confined to some islands in the Bay of Plenty; in consequence of this rapid disappearance the Government have placed its exportation under restrictions.

Appearance and habits.—In general appearance the *Sphenodon* is like an Iguana. Its coat is olive-green above, whilst the lower surface is whitish, and the tail compressed from side to side, and crested. The length of the animal varies from one to two feet. It is fossorial, and nocturnal in its habits, feeding chiefly upon insects, but has been known to exist upon shell-fish, snails, frogs, mice, birds, and raw meat.

Anatomical characteristics.—Anatomically its structure is of considerable interest. The vertebræ are bi-concave, like those found in most fish, but not in any recent lizards except Geckos; many of the ribs have uncinatè processes, similar to those possessed by birds and crocodiles, and an abdominal sternum exists as well as abdominal ribs. The skull is peculiar, in having a double horizontal bar across the temporal region and in the fact that the quadrate bone is immovably fixed to the skull. The quadrate is connected with the pterygoid, squamosal and quadrato-jugal bones. The posterior nares occupy an anterior position, opening into the orbital cavity.

It was in the *Sphenodon* that Baldwin Spencer first showed that the pineal body, found in all the vertebrates except the very lowest, consisted of a complex retina. He regarded this structure as the vestigial remains of a third medium eye—the parietal—and many naturalists have since corroborated this conclusion in several lizards.

The Dentition.—The dentition of the *Sphenodon* is acrodont in the young, but, as will be seen from one of our micro-

photographs, the bone of attachment surrounds the base of the teeth in older animals. Harrison describes calcified embryonic teeth, which never cut the gum, and are probably shed entire before the functional teeth are erupted. The teeth, consisting of hard dentine coated with enamel and ankylosed to the summits of the jaws, have a limited succession, and are not polyphyodont as is usual in reptiles. In the earliest stages the functional dentition may be described as homodont, although large and small cones, representing the third and second series respectively (Harrison), alternate along the jaws, but after a time, the teeth being worn away, the actual bone is left exposed. Through use, the alveolar process becomes highly polished, and its structure is very dense, so as to enable it to fulfil the functions of teeth in later life.

On each *premaxillary* bone at an early age three teeth are found, conical in shape, the outermost being the largest; in the mandible on each side of the symphysis there are also three cone-like teeth, and the external one is again the largest.

One fact of interest, and unique so far as our experience extends, is that as time goes on the premaxillary teeth appear to become confluent at their bases by intimate fusion with the bone. The three cones appear as a single, broad, smooth tooth, which is flattened in the antero-posterior direction and notched at the cutting edge; later on the notch is worn away, and the tooth resembles the incisor of a rodent in appearance. This loss of substance at the cutting edges, due, according to Harrison, to the shedding of the middle teeth, applies more particularly to the lower than to the upper front teeth, the latter retaining a prominent external cone till quite late in life.

Subsequent to the union of these teeth with the jaws, the bone at their bases undergoes a secondary upgrowth, and the

term "hyperacrodont" has been suggested for this form of attachment (Howes and Swinnerton).

We have not seen any specimen in which the premaxillary teeth were completely lost, although they gradually become much worn away in common with all the other teeth.

There are two rows of teeth in the upper jaw, an outer, the *maxillary*, and a parallel inner row, the *palatine*; the number of the outer or maxillary row does not exceed 17, and the teeth are small, pointed and longitudinally compressed. Of these 7 or 8 are comparatively large (measuring on an average 1 inch in height), 4 are medium in size, whilst 5 are minute cones.

In addition to the premaxillary teeth all those in the anterior portion of the maxillæ, excepting one, are soon worn down to the level of the alveolar process. On the other hand, the posterior maxillary teeth persist longer, although ultimately they, too, become considerably more worn than those on the palatine bones.

The inner row, or *palatine*, consists of 10 or 11 similar teeth lying parallel with the maxillary; the first tooth, the largest, being separated by a small interspace from the rest of the series.

Vomerine teeth have been described by Baur, Howes, and Harrison. The last named found one on each side, not cut, but fused to the bone, and he regards them as vestigial remains.

In the *mandible*, on each side of the symphysis, two or three cones have been fused at their bases, and as previously stated they become worn, notched, and flattened in a similar manner to the premaxillary teeth.

Posteriorly there are 14 teeth on each side, the front ones of which soon wear away and the jaws perform the functions of teeth, whereas the posterior cones persist for a longer period.

The mandibular teeth closely articulate between the maxillary and palatine series.

We do not think it possible to arrive at any conclusions in regard to the rate of wear of the teeth, as that must largely depend upon the diet of each individual. We may mention, however, that through the kindness of Mr. Bartlett, of the Zoological Society, we have been enabled to estimate the average duration of life of the Sphenodon, subsequent to confinement in the Gardens, at about three years. The extremes of the length of life of nine animals brought to the Zoological Gardens from 1890 to 1895, ranged from ten months as a minimum to five years as a maximum.

Observations.—From the point of view of the odontologist the chief interest in this animal lies in the fact that all the teeth become worn away with age, and the maxillæ themselves subserve the functions of teeth. We may here state that we have satisfied ourselves, by examination of several fresh specimens, that the polished free margins of the jaws are exposed to the surface, and we can corroborate Tomes' investigation, which showed that no dental tissues surmount the jawbones. Although such a condition is extremely rare it is not altogether unique, as Günther states that it also exists in the lizard *Uromastyx*. For analogy of such conditions a comparison may be made with the African egg-eating snake, *Rachiodon* or *Dasypeltis*, in which the hypophyses of the sixth and seventh cervical vertebræ penetrate the œsophagus and fulfil the purpose of teeth. The exposure to the surface of dental tissues fused to the jawbones is seen in the *Lepidosiren*.

Some important points arise as to the cause of the wearing away of the teeth of the Sphenodon. It does not appear to be due to imperfect structure or calcification, as microscopical examination shows that the structure of both enamel and dentine is good and their calcification complete. There is no

evidence of fracture of the teeth due to faulty attachment, for the dentine and bone are thoroughly fused together, as may be also seen in similar sections. Again, if the teeth of the *Sphenodon* were in process of disappearance in consequence of disuse, there would be no necessity for the trenchant jaws which are subsequently brought into use : therefore the most probable explanation is that the teeth are worn away by means of attrition, due partly to the coarse food and the gritty particles taken into the mouth with such food, and partly to the burrowing habits of the animal.

The small teeth are unsuited to the refractory diet of this reptile, and so Nature has evolved jaws with sharp cutting edges best suited to its food and habits.

It is an example of a reptile which, in consequence of adaptive modifications, brought about by fossorial habits as well as by its food, has assumed in the adult a maxillary armature similar in function to the rootless teeth of rodents. This modification has affected not only the teeth, but also the jaws and the mandibular articulation.

The mandibular condyle runs in the anteroposterior direction, an interesting fact, as it does not appear to occur in any other reptile, and so far as we know has not been previously pointed out.

Other examples of modified dentitions for the benefit of the animal are known in Mammals in the rodent-like teeth of the Aye-Aye (*Cheiromys*) amongst lemurs, and in those of the Wombat (*Phascolomys*) amongst Marsupials ; whilst an illustration of the wearing away of the teeth from attrition through the presence of sandy particles in the food may be found in the Duck-billed Platypus (*Ornithorhynchus*), in which the loss of the teeth takes place at an early age and the thickened epithelial plates covering the jaws act as teeth of persistent growth.

Summary.

(1) In the Sphenodon is seen an example of a reptile with a dentition characteristic of its class at an early age, but as time advances the premaxillary and corresponding teeth in the mandible become fused at their bases and are analogous to the scalpriform incisors of rodents, which are used in gnawing and burrowing. The antero-posterior direction of the mandibular condyle affords another indication of its rodent-like proclivities.

(2) The type of dentition, homodont in the young animal becomes apparently heterodont in the adult.

(3) The teeth lost by attrition, find a substitute for their functions in the dense, hard and polished free margins of the jaw-bones, which become exposed to the surface.

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EDUCATION OF PATIENTS.

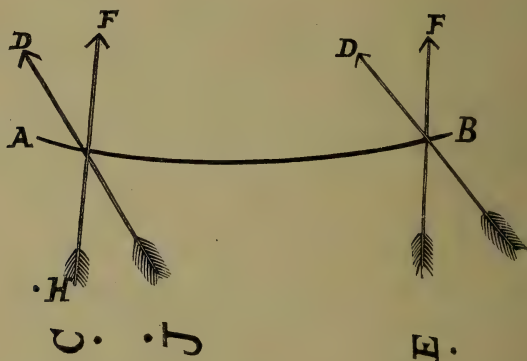
If dentists would for a time centre their whole attention upon educating the people up to properly cleaning their teeth, and getting them filled just as soon as possible after decay has started, I am confident we would soon hear less of the "horrors" of dentistry, and of the failures of filling.—*Dominion Dental Journal*.

THE MOVEMENTS OF THE MANDIBLE.

By T. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng.

(Continued from page 1016.)

At first sight it may appear a matter of little practical importance whether the axis of motion of the mandible is in the condyle, below it, or, as Tomes states, "far behind it." Reference to the accompanying diagram will, however, render it quite clear that if we are to arrive at any definite knowledge of the forces which determine and maintain the position and relationship of the teeth, we must have no doubt as to



the normal site of the axis of motion of the mandible during elevation. C represents the position of the condyle, and the line A B the relative position of the occlusal line of the teeth. If circles be drawn with the centre at C, tangents

drawn to them at their points of intersection with A B, will give the direction of impact of the lower with the upper teeth at those points assuming that the mandible has a huge movement. Thus the arrows D D mark the direction of impact at the points where they intersect the line A B. If however the axis of motion is at E (the true centre of motion) the direction of impact at the same points will be indicated by the arrows F F, which form tangents to circles drawn with E as centre. We see therefore that, in the former instance, the impact of the lower teeth against the upper would have a markedly protrusive tendency, particularly upon the posterior teeth, while in the latter it would be, if anything, slightly retractive.

Again, in the former case, when the mandible is depressed the chin is carried backwards to a much greater extent than in the latter; in which the vertical relationship of the teeth in the upper and lower row is but little disturbed during moderate extents of depression.

Tomes' statement that the centre of motion is "far behind the glenoid cavity" is altogether inexplicable. In his *Dental Anatomy* he states: "The axis on which the jaw moves is, owing to the bend of the ramus, far behind the glenoid cavity." This evidences some confusion of thought, very unusual with the distinguished author, for in the case of typical carnivora, where there is also a bend of the ramus, the centre of motion is not "far behind the glenoid cavity," but in the condyle itself. Moreover, the statement implies that the distance is considerable; yet anybody who will take a pair of compasses, and a little trouble, can easily convince himself that it is impossible for the axis of motion to be far behind the glenoid cavity without dislocation of the condyle taking place when the mandible is depressed. For instance, in fig. 1 if a point K be taken as the axis of motion of the mandible six inches from C on the side remote from AB, and from an

inch to an inch and a half below the level of C, it will be found that when the extremity A of the line A B, which represents the position of the lower incisor teeth, reaches the point H, the condyle C will be at the point J; and the further off K is the greater will be the dislocation of C.

From the foregoing we see that John Hunter's description of the movement of the mandible is more nearly accurate than that of any modern anatomist, and it is therefore the more to be regretted that he made no attempt to explain the mechanism of the movement. Had subsequent experiment confirmed Hunter's surmise as to the site of the centre of motion, the problem would have appeared much simplified, because it happens to correspond with the attachment of the external lateral ligament. It would have been so easy to have assumed that that ligament resists the action of the depressor muscles, and therefore the mandible rotates about the point of its attachment to the condyle! This could have been demonstrated by dissection, because it is exactly what occurs in the "dropping of the jaw" at the moment of dissolution. It is possible that it was this fact that misled Hunter.

Unfortunately this seeming solution of the problem is negatived by the fact that the axis of motion during life is not at the point of attachment of the external lateral ligament; and, if it were, we know that when ligaments resist the movement of a joint there is always great pain. This is often seen in connection with the mandible in the case of old people who have lost their teeth; and is admirably illustrated by two cases recorded by Mr. J. Sefton Sewill in the *British Medical Journal*, Jan. 16th, 1897.

Now the dropping of the jaw which has already been referred to evidences the fact that during life the weight of the mandible is counteracted by the tonicity of the elevator muscles. It follows, therefore, that the resistances of these muscles must be important factors in the problem before us.

When the depressor muscles which are attached to the body of the mandible act they tend to draw it downwards and backwards. At the same time the external pterygoid muscles acting upon the condyles, and the inter-articular fibro-cartilages tend to draw these structures forward ; and it is the writer's opinion that these muscles play a more important part in simple depression than is usually assigned to them by anatomists, who seem to regard them almost exclusively as rotators. The writer's reason for this is that if when the mandible is being depressed the movement is even slightly resisted by placing the thumb under the chin there is at once a tendency to protrusion of the mandible, and the more forcible the resistance the greater the tendency ; and it is obvious that this must be brought about by the agency of the external pterygoids acting as depressors.

The tendency to depression of the body and forward movement of the condyles during the action of the depressor muscles is resisted by the elevator muscles ; and we may infer from the great amount of tendinous material intermixed with the muscular fibres of the masseters that those muscles take the lion's share in the resistance.

At this point we shall be considerably aided by a diagram of the mandible ; and for the sake of simplicity it will be well to consider the action of the muscles separately.

The letter R in the diagram makes the effective point of attachment of the masseter and internal pterygoid muscles. This letter should be rather further on the ramus than it appears in the diagram. This indicates the primary point of resistance.

The arrow A marks the direction of the force exercised by the depressor muscles attached to the body of the mandible. This force it is easily seen would tend to rotate the mandible around R—a tendency to rotation much increased by the force exercised by the external pterygoid muscles, the direction

of which is marked by the arrow C. It is thus seen that the tendency to rotation around R is at least as great as the tendency to depression, and if it were not for the restraining force of the resistance of the temporal muscle which acts in the direction of the arrow D, the condyle would travel to the articular eminence at the very commencement of the movement of depression of the mandible. Rotation of the mandible around R is also resisted by the parts of the temporal bone, which help to form the articulation. Friction can be ignored, so well are the parts adapted for a free movement. If the resistance offered by the masseter and pterygoid muscles were not elastic—that is to say if they did not gradually yield to the pull of the depressor muscles, it would of course be impossible to open the jaw. This the dentist often has experience of in the case of impacted wisdom teeth. R therefore is not a fixed point. Depression of the mandible, then, is the resultant of the forces exercised by the depressor muscles against the tonic resistance of the elevator muscles slightly modified by the disposition of the fixed bony parts of the articulation. It is obvious, therefore, from the disposition of these forces that a hinge movement in the condyle is impossible, unless the disposition of the bony parts were such as to prevent its forward movement, which is not the case in a normal jaw.

(To be continued).

A PLACE FOR COPPER AMALGAM.—In hypersensitive cavities along the buccal surface of molars, where it is almost impossible to properly prepare them thoroughly for filling, I dry them out as well as I can, and by filling with copper amalgam I can save the teeth with less preparation than with any other material I have ever used.—J. A. LIBBEY, *Dental Cosmos*.

British Journal of Dental Science.

LONDON, DECEMBER 1, 1901.

ARMY DENTISTS.

Two of our dental contemporaries contain articles on the provision made by the War Office for attending to our soldiers' teeth. But the tone of each is very different. One speaks with satisfaction of the steps which have been taken in sending out four dentists to South Africa, and intimates that the Army Medical Department has decided to augment that number without delay. The other draws a mournful picture of poor Tommy Atkins invalided home on account of his bad teeth, applying in vain to the Soldiers' and Sailors' Help Society, Chelsea Hospital and Lloyds' Patriotic Fund for artificial teeth, which are needed before he can regain his health and fight once more for his country.

We are extremely glad that the War Office has at last seen the necessity of dispatching more dental surgeons to the seat of war, and we have no doubt that before very long a staff of dentists will figure as part of the personale of the Army Medical Department. The temporary arrangements are as follows, and we may remark that the career thus opened up for young dental surgeons is by no means a bad one, being analogous to that of the civil surgeons serving with the army in South Africa.

"Applicants must be qualified to practise dental surgery, and must be registered under the Dental Act now in force in the United Kingdom. The period of service shall commence from date of embarkation from England, and shall continue

until the expiration of twelve calendar months thereafter, or until his services are no longer required, whichever shall first happen. The pay will (subject as hereinafter appears) be 20s. a day for the said period. In addition to such pay, a free passage from England to South Africa, and (subject as hereinafter appears) a similar free passage from South Africa to England at the end of the said period will be provided, and there will also be given an advance of field allowance as for a captain in the army on proceeding abroad, and field allowance thereafter during service in the field, the use of a government house, and a soldier or civilian servant, and rations while in the field. During the said period he must devote his whole time and professional skill to his service, and shall obey all orders given to him by commissioned, military or naval officers, or by the permanent medical officers of either of these Services. In case he shall complete his service to the satisfaction of the Secretary of State in all respects, he will receive at the end of the said period a gratuity of two months' full pay at the rate hereinbefore specified, but in case he shall in any manner misconduct himself, or shall be (otherwise than through illness or unavoidable accident) unfit in any respect for service, of which misconduct or unfitness the Secretary of State shall be sole judge, the military authorities shall be at liberty from and immediately after such misconduct or unfitness to discharge him from further service, and thereupon all pay and allowance will cease, and he will not be entitled to any free passage home or gratuity.

But while we welcome the advent of dental surgeons to the Army Medical Department, it only meets part of the exigences of the case. Many soldiers have become unfit for their duties through decay and loss of their teeth. Some have been invalided home, some have made the inefficient state of their teeth an excuse for malingering, some serving in India have recently—according to *Truth*—been prohibited from re-enlisting for a further term of years on account of defective teeth. If the latter re-enlist they are entitled to a bounty of £26. In each of the three classes cited, all that seems necessary to retain a highly-trained public servant is

the supply of artificial dentures. Surely it is false economy to dismiss such, after an expensive training, when the expenditure of a small sum would render him once more an efficient soldier. Surely if the State gives a bonus of £26 to a re-enlisting soldier, it could go a step further and supply him with some artificial teeth, or the necessary sum could be stopped out of his bonus, or his re-enlistment made conditional on his supplying himself with the requisite dentures.

The fact is that the Army requires dental mechanics as well as dental surgeons, and the sooner this fact is grasped the better. If the soldier loses limbs or eyes they cannot be efficiently replaced, but the case is different with teeth, which can be efficiently replaced at a cost which is extremely small in proportion to the advantage gained.

Footnote.—Applications of intending candidates should be sent to the Hon. Secretary of the British Dental Association, 32, Leicester Square, London.

THRICE MAYOR OF CHELTENHAM.—Mr. Richard Rogers, L.D.S.R.C.S.I., has already served the office of mayor for three years, the last occasion being two years ago.

Mr. Labouchere writes in *Truth* : " I am much obliged to the numerous Service readers of *Truth* who, in reference to my recent confession of ignorance as to the reason for rejecting soldiers on account of defective teeth, have hastened to inform me that this test of military efficiency originated when it was necessary for a soldier to bite off the end of his cartridge. Of this fact I was not ignorant. But am I to take it that the only reason for rejecting men for military service to-day on the score of defective teeth is that fifty years ago sound teeth were required in order to enable a

man to bite his cartridge? I know the force and persistency of tradition, especially evil tradition, in the public service, but I hardly thought it could go as far this. Besides, the teeth that were necessary for biting the cartridge were the front teeth, whereas in the present day a man is as likely as not to be rejected because one or two of his molars are decayed or missing. When I debated this question in *Truth* a few years back, I was told that it was of vital consequence to a man's military efficiency that he should not be liable to tooth ache when on active service. To this I would answer that the fact of a man having all his teeth perfect at eighteen is no security against his having tooth-ache during the next seven years. You might as well try and select men who will not be liable to stomach-ache in the field. Besides, in the present state of medical science, any Army doctor ought to be able to cure tooth-ache in five minutes."

A METHOD FOR WELDING COPPER.—Professor J. R. McCall, in the *Record* of the University of Tennessee, gives the following directions for welding copper: The copper should be treated with potassium nitrate and a cyanide, after which it is welded to itself, or to iron or steel, in the same way that iron is welded in the ordinary forge shop. A clean fire of coke or charcoal and a temperature of the copper considerably below a white heat ensure the best results. A temperature above this makes the metal brittle in working, while one much below will not give sufficient fluidity to the flux. In tension tests the welded joints developed practically the whole strength of the copper.

STRENGTHING VULCANITE PLATES.—The employment of metal devices for the supposed purpose of imparting strength to a vulcanite plate is an error, for in proportion to their bulk they displace vulcanite and thus weaken the piece, with greater liability to crack and greater difficulty of repair.—Grant Mitchell, *Ohio Dental Journal*.

Abstracts of British & Foreign Journals

THE AMERICAN BOGUS DIPLOMA MILL AT WORK.

The *Dental Digest* exposes one of these abominations. The letter of invitation to buy is as follows:—

Dear Doctor,—We inclose you herewith some of our literature for your careful perusal, together with a dentist's application blank for you to fill out and return to us, should you wish to join our dental staff. The many advantages, privileges and financial benefits to be gained by your joining us, are briefly and partially told as follows, viz. :

1st. We issue, in addition to our certificate, a neat lithograph pocket membership ticket, which we believe, if displayed judiciously, will pay for your ticket many times over during the course of a year. Should you want only our pocket membership ticket alone, it will cost you 2.00 dols. ; therwise, it goes free with the certificate of membership.

2nd. We have just received a very costly and ornamental red cross solid gold button from the wholesale jewellers, lettered in circular form : "Staff St. Luke's Hospital," which goes free with our new membership, or if ordered alone, 2.00 dols.

3rd. We will pay you a commission of 25 per cent. in cash for all surgical operations, and 10 per cent. on all medical cases you may send to our hospital for treatment.

4th. Should you wish to consult us at any time regarding difficult cases, we will freely give you whatever assistance and advice we can, and will make microscopical analysis of specimens sent us free charge.

5th. We charge nothing for nursing patients, day or night, as part of the expense is taken from our nursing fund. We do charge, however, for board and rooms, ranging from 1.50 to 2.00 per day, according to location selected by the patient.

6th. After you have ordered and paid for the certificate of membership, *either in English or Latin*, should you so

desire it, and will send us a list of names, not exceeding twelve, including your local newspapers, we will write an individual letter, recommending you to each one of them. Of course these letters of endorsement are optional for you to accept or reject, whichever you see fit.

Now, Doctor, after considering all these strong features, we would ask with all fairness, Do you not consider it to your financial interests to have your appointment confirmed? Kindly let us hear from you as soon as possible, and greatly favour.

Fraternally yours,

Arthur C. Probert, M.D., D.D.S., President.

The application blanks read thus :

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To St. Luke's Hospital . . . Michigan—Please place my name on your staff as one of the Consulting and Visiting Dental Surgeons to St. Luke's Hospital. Name in full . . .
 . . . City . . . State . . . Specialty . . .
 Name your College or Dental Examining Board . . .
 Certificate of Membership in English or Latin . . .
 Year of graduation or registration 18 . . .

Please state whether you want your Certificate in English or Latin.

No liability whatever is attached to signing this application form. Dentists who are in active practice will be appointed upon our Medical and Dental Staff.

It will bring you prominently before the general public to belong to the Staff of St. Luke's Hospital.

We shall be pleased to enroll your name as such upon our record book. Our object is to obtain a large and increasing membership to our present Staff of Physicians and Dental Surgeons. This membership is selected from the most successful and skilled practitioners, whose various modes of

treatment are attracting the personal attention of the general public.

The list of members will be closed shortly. Please fill in this application form, returning it to us by early mail, and we shall take pleasure in placing your name in good standing upon the Medical and Dental Staff of our Hospital, entitling you to all the advantages and financial benefits of membership.

Kindly select and mark with a cross thus : X, right over the priced certificate you desire to have sent, and remit us in advance the amount, together with this application form properly filled out, and we will have your certificate safely sent you by return mail. Should you prefer it, we will send your certificate through any bank you may name, postmaster, or via American Express, C. O.D., you to send us 2.00 dols. in advance, to apply on your account as a guarantee of good faith that you will promptly take your certificate from the bank, post or express office when it arrives. If you remit us in advance you save this extra expense and delay.

These certificates are artistically lithographed (size 19 by 25 inches) and set forth that the holder has been regularly appointed to the honourable ranks of a member of our Staff of Medical and Dental Surgeons. These certificates are a great attraction to any dentist's office. All the members of our Staff are delighted with them and say that they impart confidence to their visitors and patients. They are truly a beautiful illustration of the higher art of the lithographer, and any dentist ought to be proud to have one framed and hung upon the wall of his reception or operating room. It is something that increases the practice of the dentist and wins him many dollars during the course of a year. These certificates will be delivered free in tubes by mail, and furnished as follows—Heavy royal linen paper, 5.00 ; imitation of parchment, 7.50 ; genuine sheep-skin, only 10.00.

We send out all of our certificates with your name handsomely engrossed thereon in Old English or Round Hand style of letters, with two pieces of dark blue ribbon and a large corporate gold seal affixed thereto, giving it the general appearance of a regular Hospital Medical or Dental College Diploma.

N.B.—The amount received from these Certificates of Membership is devoted entirely to the general expense of maintaining the Hospital for the benefit of all concerned.

Date of Certificate of Membership

ROOT-FILLING.

Break up a box of gutta-percha stopping and put in a large-mouthed bottle of colored glass to exclude the light. Add enough chloroform to dissolve, and make a cream. Allow it to remain open until nearly all the chloroform has evaporated, then add oil of eucalyptus to make it like dough, and leave open for further evaporation. Then add enough powdered euophen to bring to a consistency that can be lifted without running. Fill canal and follow with gutta-percha points.—T. Marshall Weaver, Ohio Dental Journal.

MISCHIEVOUS GOSSIP.

We venture to think that a protest ought to be made against the way in which a certain small section of the press panders to morbid curiosity with regard to the illness, real or supposed, of distinguished people. We have recently seen that this tendency may lead to the circulation of circumstantial statements founded upon ill-informed conjecture, and of such a nature as to be calculated to cause much distress and anxiety to a great number of people. Rumours to the effect that the King was suffering from a serious malady have been current since his accession. They appear to have originated on the other side of the Atlantic, how we cannot pretend to say, and to have been encouraged by persons who claimed, without, of course, the smallest tittle of reason, to speak with some sort of personal knowledge. We have seen a long illustrated article in an American newspaper purporting to give, on the authority of an American specialist, a detailed account of a malady from which the King has suffered, with particulars of the operations already performed, and of others which might become necessary. Other articles, almost equally circumstantial, have been published in American newspapers, and have been quoted in the Continental press. We think it is to the honour of British journalism that these mischievous stories have been generally

ignored, recently, however, a few British papers have reproduced, with an air of authority, gossip which a little inquiry, to say nothing of common sense, might have convinced them was foolish as well as discourteous. The fact that the King has been going about as usual, participating in the ordinary work and recreations of the country with that frank and simple dignity which has helped so largely to endear him to his people, might have made any rational person sceptical of such stories. As a matter of fact, the whole of the gossip, as we have already stated, is absolutely unfounded and untrue from beginning to end. It seems to us that this sort of thing is not, to use a phrase popularised by Mr. Kipling, playing the game. It is the business of a newspaper to gather and publish news. Probably few people who take up their daily paper realise how much pains is taken by responsible journalists to verify statements which come to them as news. But unverified gossip is not news. If a story of this kind is not contradicted the gossip-mongers argue that as it has been published and has not been contradicted therefore it is true. But if one rumour be corrected to-day (this particular rumour was corrected in America many months ago) another may be set on foot to-morrow. Is it fair to expect every piece of idle gossip of this kind to be formally contradicted? Yet such rumours may do a great deal of injury. This particular rumour, it is said, has had a most injurious effect upon trade, and we are informed that some firms have found it necessary to discharge employees in consequence of the feeling of uncertainty thus created. Personal details about his own health, are surely matters which any man, whether prince or peasant, may make public at his own time, if at all. In saying this we are of course well aware that by established custom particulars are published as to the health of the ruler of a State which could not properly be given in respect of an ordinary patient, and we would not be understood as criticising the action of those members of the medical profession who, when occasion unhappily arises, authorise or subscribe, with a full sense of the responsibility of their position, statements for publication as to the health, or as to the cause of the death, of kings or other rulers. But in such cases the statements made are put forth with the consent of the ruler and of his advisers, or the immediate members of his family and household.

Apart from other considerations, which need hardly be taken into account at the present day, the interest which peoples feel in all that concerns the welfare of the Head of

the State will doubtless always require that reasonable information as to illness threatening life should be made public.

But this circumstance should render the press all the more indisposed to give circulation to unverified rumours, which, as in this instance, can only originate from the foolish gossip of fussy busybodies.—*British Medical Journal*.

THE IDEAL DIE.

Take a plaster impression. If it breaks, unite the pieces with some easy-flowing cement. Boil the impression in beeswax ten or fifteen minutes to fill the pores of the plaster. Build a sheet of wax up around the tray to the height of the desired die, coat thoroughly with dry graphite, and electroplate with copper to the thickness of a writing card. Set the impression on a dish of sand, and pour molten zinc into the matrix thus formed. This will give a die that cannot be duplicated for accuracy, quickness, cleanliness durability.—George A. Compton, in *Dental Clippings*.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, October 28, 1901. Mr. W. A. Maggs, L.R.C.P., M.R.C.S., L.D.S., Eng., President, in the Chair.

The minutes of the last meeting were read and confirmed.

LIBRARIAN'S REPORT.

The Hon. Librarian (Mr. H. Baldwin) said the thanks of the Society were due to Mr. J. F. Colyer for a copy of the second edition of "Diseases and Injuries of the Teeth," by Messrs. Smale and Colyer.

The CURATOR reported the gift from Mr. Morton Smale of a skull of a young gorilla, showing an extra tooth in the region of the left mandibular canine.

Mr. J. G. TURNER read the following communication :

TEETH OF MICROCEPHALICS AND CRETINS.

GENTLEMEN,—I have here casts of the teeth of two cases of microcephaly, one from a child aged 12, and the other from an adult, both females. The child I saw two years ago, and my note was that all the teeth, both temporary and permanent, were small. At that time (aged 10), of the permanent set only the four central incisors and the four first molars were erupted, and at the present time the molar and bicuspid teeth are backward. For the casts of the present state, as also for casts of a cretin, I am indebted to Dr. Beresford, of Darenth Asylum, who also states that he agrees that the teeth of microcephalics are all small.

If one may argue from one case, it would seem that microcephalics are slow to attain their full adult dentition—both slow in shedding the temporary set and in erupting the permanent. Both these cases show teeth well formed, but small; and in others I have seen—I can recall two—the teeth were also small. The conclusion seems to be that the impress to grow small is fixed in the tissues, and that no such operation as linear craniectomy can be expected to do good. The quality of the teeth seems to be normal, and I have noted no special tendency to decay.

Next, I have some casts of cretinous mouths which I will pass round.

First I will pass round the edentulous mouth of a cretin aged a year and 5 months (Paddington Green Children's Hospital).

(2) The mouth of a cretin aged 2 years, showing partial eruption of four T.M., only.

(3) Mouth of cretin aged 8 years, and six months (Great Ormond Street Hospital for Sick Children), taken May 10,

1899; shows full temporary set *in situ*. Treatment begun January, 1898—gr. $1\frac{1}{2}$ thyroid gland per diem. When seen, July 8, 1901, aged 10 years and 8 months, the four central and lateral permanent I._s and the four M._{is} were fully erupted, and the child had made great progress both mentally and bodily.

(4) The mouth of cretin, F., aged 10, taken July 15th, 1898, Darentb Asylum. Treatment begun May 28, 1898. The dentition is practically that of the sixth year; L.L._{is} are erupted, but none of the permanent molars.

(5) Mouth of the same cretin after two years' treatment. taken August 27, 1901. There is great general improvement. Shows corresponding progress in eruption. All four I._{1&2} and M. and L.L.P.M., erupted.

(6.) Mouth of cretin, aged 10 years and 6 months, F. No history of treatment; gums around upper incisors hypertrophied. The upper centrals are not fully erupted, and the upper laterals not showing. The dentition=seven years.

(7) Mouth of cretin, aged 12, F., taken July 4, 1898. No history of treatment, except unreliable of treatment at 5 years and 6 months. Shows no signs of bicuspid or M._{2s}, upper or lower, nor of U.C._s. Temporary molars retained except L.T.M._{1s}. Dentition = seven years except for appearance of partly erupted L.C._s.

(8) Mouth of cretin, M., aged 21, West End Hospital for Nervous Diseases. Shows L.U.T.C. and L.L.T.C. and L.L.T.M.₂ *in situ*, U.M._{2s} unerupted, and irregularity in upper bicuspid region due to retention of temporary teeth.

(9) Mouth of cretin, aged 23, F. Shows all four T.C. R.U.T.M.₁, and remains of R.U.T.M.₂ and of R.L.T.M._{1&2}, *in situ*.

(10) Mouth of cretin, aged 30, F. Treatment begun late; no response. Shows upper C.'s partly erupted. In lower from left to right, M.₂, M.₁, P.M._{2&1}, C.T.C., I._{2&1}, T.I., I._{1&2} T.C., P.M._{1&2}, M.₁, M.₂. Such a dentition looks like two rows. Inspection of three other cretin mouths, showed M. 27 normal; M. 31 normal; M. 2T, L.U.T.C., retained and P.C. erupted, and same for L.L.T.C.; otherwise normal.

It seems, then, that untreated cretins are slow both in shedding the temporary and in erupting the permanent teeth, though the tendency is toward eventual perfection of the dentition. Especially there seems, from the frequency with which temporary teeth and those of succession are found

in situ together, to be a want of activity in the absorbent process. This is not merely due to death of the temporary tooth, since it is seen often in the case of sound temporary teeth. Dentition may also commence irregularly.

Further, where there is general improvement under treatment, it is accompanied by and may be estimated by the improvement in the dental conditions, and where there is no improvement the dentition merely pursues its slow course to completion, which may, perhaps, never be reached.

This observation, of course, coincides with the fact that treatment is only of use during the natural growing period.

The PRESIDENT said the communication was valuable, and the relationship between the growth of the teeth and the general development, established by the observations recorded, highly instructive. He asked Mr. Turner what the physiological action of the thyroid extract was—did it affect the nervous system in particular, or have a more general effect?

Mr. W. RUSHTON asked what was the difference between cretins and microcephalics.

Mr. DOWSETT asked whether Mr. Turner had found that any of the jaws were abnormally large, and whether the caries of the teeth was due to deficient calcification or to want of cleanliness. He recalled one case of cretinism with an enormous jaw.

Mr. J. G. TURNER, in reply, stated that he was unable to state what the precise physiological action of the thyroid extracts was. The presence of the thyroid gland in physiologically active state was necessary for the development of the organism; if the gland were absent or were unable to perform its function, this want was more or less successfully supplied by the exhibition of the thyroid of certain animals.

The difference between microcephalics and cretins was that in the former growth was arrested early, the head being especially small; while in the latter the development was arrested in consequence of loss of function of the thyroid gland. No exceptional departure from the normal size of jaw had been noticed in cretins, and the caries was due to want of cleanliness.

The PRESIDENT in referring to deceased members said: I regret to recall the death of Mr. Henry John Barrett, which event took place in June of this year. Mr. Barrett was one of the original members of this Society, having been

elected in 1856, he served on the Council for several years from 1856 onwards, was Vice-President from 1866 to 1868, and 1878 to 1879, and President in 1869. He retired from active practice some years ago; nevertheless he was an honorary member of this Society, and was always greatly interested in its welfare and in the prosperity of the profession.

I am sorry too, to announce that Mr. Robert Hepburn, also an honorary member of this Society, died on the 10th of this month at the ripe old age of 92. Mr. Hepburn was one of our oldest members, having been elected in 1859. He served on the Council from 1862 to 1866, was Vice-President from 1867 to 1868, and President in 1869. He was a pioneer of the profession, an ardent supporter of this Society, and a frequent attendant at our meetings.

The Council in both cases has passed a vote of condolence with the relatives of the deceased, as I am sure is the wish of every member.

Mr. F. C. WALLIS, F.R.C.S., read the following communication :—

A CASE OF MISPLACED, INVERTED AND UNERUPTED RIGHT
LOWER WISDOM TOOTH, REMOVED FROM THE OUTSIDE.

A lady, aged 46, came to see me on June 10, 1901, for a condition supposed to be necrosis of the jaw. The history of the then present condition was as follows :

In February, 1900, the patient had an attack of influenza, followed by pneumonia and bronchitis, which confined her to her bed for nine weeks. Between the second and third week of the illness the right lower jaw began to swell, and on the third day of this attack the jaw became fixed. The swelling was bathed and poulticed, and finally two teeth were extracted, without any relief. The poulticing was then continued, an abscess formed and was opened. Until this occurred the patient was enduring very great pain, and from her account, and also her doctor's, she must have suffered very much. A sinus formed, which led to bare bone and was constantly discharging pus. This condition continued until one month before I saw her, when, at Plymouth, an attempt was made to remove some bone.

When seen on June 10 the right lower jaw at the angle was swollen, and the skin and tissues over it were indurated and chronically inflamed ; there was a sinus, which had bare

bone at the end of it. Pus exuded from a small opening in the mucous membrane into the mouth. The jaw could be opened to a limited extent only.

There was nothing to suggest that a tooth was the cause of the trouble, and in every way the condition seemed to be one jaw necrosis following influenza. With that idea I decided to operate and remove any sequestrum of bone which would probably be loose sixteen months after the original attack.

Two days later, assisted by Mr. Bellamy Gardner, who gave the anæsthetic, and by Mr. Ramsay, I enlarged the opening on the outer side of the jaw, and passed in a stout probe. On tapping with this to demonstrate the sound of bare bone I was impressed by the high-pitched sound produced, and mentioned this to Mr. Gardner, saying that it seemed more the sound produced by tapping on a tooth. He listened to the sound, and came to the same conclusion. The skin incision was lengthened to about $1\frac{1}{2}$ inches in all, the tissues were rouged off the bone for a small area all round probe. The bone was drilled and chipped off carefully, and after a little trouble a portion of tooth was clearly exposed. This was quite firmly fixed, and any attempt to lever it out would have been attended with great risk of either breaking the tooth or breaking the jaw. After a somewhat tedious process of gouging and drilling away sufficient bone, I managed to get a curved periosteal elevator under it and gently levered the tooth out. The form in which it had lain exactly fitted the tooth, and was a smooth-lined cavity, in the substance of the ascending ramus, just above the angle of the jaw, and rather nearer the inner than the outer angle. A small piece of gauze was placed in the bottom of this cavity, and two or three stitches closed up the incision. The patient made a rapid recovery and is now perfectly well, the only reminder of her trouble being a small puckered scar in the region of the old sinus.

Mr. Gardner thought an account of this somewhat unusual condition might be welcome to the Society, and having received a courteous invitation from your secretary to read a paper, if I had anything of mutual interest, I have ventured to bring this case to your notice.

There are, no doubt, a certain number of people with unerupted molars who have gone, or will go, through life without this fact causing them any inconvenience, or calling for any interference. A large number, again, have unerupted

molars which cause considerable trouble, but which can, as a rule, be dealt with by the dentist from within the mouth. But a molar in this unusual position is, so far as I can gather, a very rare occurrence.

Why a tooth should remain quiescent for so many years, and then suddenly act as a foreign body and produce all the unpleasant consequences thereof, it is difficult to say, unless, indeed, the tooth was a living one until the patient had influenza, when it became a dead one and acted as such. On the other hand, surely it is usual for a living tooth so fully developed as this, to make various attempts to establish itself in its proper place, but previous to February, 1900, the patient had never had any trouble with it.

The correct diagnosis of the case was hardly to be expected, and no reflection can rest on any one for mistaking it for one of jaw necrosis. Bearing this case in mind, however, in any future obscure inflammatory trouble of the jaw I should be anxious for a dentist's opinion, also skiagraphy would probably be of use.

Should it be established that the wisdom was unerupted, I am inclined to think that, having regard to this case, the proper method of removal would be from the outside; certainly no other course was likely to avail here.

These are one or two points of interest which have occurred to me, and probably there are others; as, for example, the reason of the peculiar situation of the tooth—a developmental freak, no doubt, and one on which I should be glad to hear an expert opinion here to-night.

The PRESIDENT thanked Mr. Wallis for bringing the case before the Society, and congratulated him upon the success which had attended his treatment. The position of the tooth was unique, and there was no indication before the operation that the suppuration was due to a misplaced tooth.

Mr. BALDWIN could not adopt the view that the death of the tooth was the cause of the trouble. The abscess invariably was connected with the crown of the tooth in these cases, and the teeth when removed were found to have healthy roots and living pulps. A case which he reported to the Society some years ago bore out this view; there was a sinus in the palate, and necrosis had been the diagnosis of more than one surgeon who had seen the case. The crown of a tooth, which proved to be a very long-rooted canine, was detected high up in the middle of the palate; the root as it

stood vertically above the crown must, had it been diseased, have caused signs of nasal trouble, but there was no such sign. Then again a tooth which dies as result of a blow does not usually cause abscess when there is no cracking of the enamel and no caries of the dentine.

Mr. J. G. TURNER asked if Mr. Wallis could say where the first sinus opened.

Mr. WALLIS was not sure, but thought on the outside.

Mr. TURNER said he agreed with Mr. Baldwin that the trouble began round the crown of the tooth. He had observed carefully, and in all cases of abscess round an erupting lower third molar had found either a direct communication with the mouth or a layer of tissue such that pus germs might easily make their way through. If, as Mr. Wallis suggested, the nerve died, the germs had yet to be brought to it, and to suggest by the blood was practically postulating some form of septicæmia.

In reply, Mr. WALLIS said he still thought that influenza was the probable cause of the death of the tooth, which then acted as a foreign body. This tooth not being functional, would not have the same resisting power as a normal tooth, and would more easily succumb to the onslaught of micro-organisms, which take a ready advantage of tissues debilitated by the effects of influenza.

A paper was then read on the "Dentition of the Shenodon," which is published at page 1059.

The President then delivered his inaugural Address, which we hope to publish in our next issue.

Mr. CANTON proposed a very hearty vote of thanks to the President for his able and interesting address.

Mr. S. J. HUTCHINSON said it gave him much pleasure to second the proposal made by Mr. Canton, and so cordially received. The motion was carried by acclamation.

The PRESIDENT thanked Mr. Carton and Mr. Hutchinson for their kind words, and the meeting for the manner in which they had received the motion. He hoped that they would have a successful session, and announced that the next meeting would take place on Monday, November 25th, when a paper entitled "Science in Dentistry and a few Experiments in Gold Fillings," would be read by Mr. W. Cass Grayson.

Then meeting then terminated.

STUDENTS' SOCIETY,
NATIONAL DENTAL HOSPITAL.

The usual Monthly Meeting of the Society held on Friday Oct. the President, Dr. Maughan in the chair.

Mr. E. Morris was elected a member of the Society and the following gentlemen were proposed :

MESSRS. G. L. Carpenter, McDonald, C. H. R. Grant, E. G. Street, H. Fletcher, H. Pulford, W. C. Palk, H. R. Selaces, H. R. Humby, A. J. Weatley, J. P. Glassington, G. W. Westcott.

Upon Casuals being called for :

MR. TICE showed a very good specimen of a three-rooted lower molar, and also two di-lacerated teeth. The one a lower central, the other an upper lateral.

MR. MOSELY brought forward an upper second molar with an unerupted and inverted wisdom firmly attached, and a lower bicuspid which besides being di-lacertaed was much exostosed.

MR. HASKEN showed models of three mouths, one showing a supernumery in the molar region, the second showing hypertrophy of the gums, and the last great irregularity in the upper incisor region caused by the presence of supernumery teeth.

THE DEAN showed models which had been forwarded to him from Mr. Meyers, at Poole, of a girl, aged 16 years, of partial suppression of the permanent dentition. The Dean proposed that the Secretary write to Mr. Myers thanking him for his Casual, and remarked that the Society were always glad to receive interesting cases from the students.

After discussion had taken place the President called on Mr. Hamilton to open the debate.

"Is a Medical-Degree of advantage to a Dentist."

Mr. President and Gentlemen. It is necessary for me as Secretary of this Society to make some apology for departing somewhat from a time-honoured custom in substituting a debate for a paper.

But, Gentlemen, I think that it is more a play with words than any drastic change and that the terms are practacally

synonomons, any little difference, there may be, being in favour of the word debate, and that the change will lead to the better discussion of the subject which I have the honour to bring before you. To iake an instance, after a deal of persnasion, a gentleman consents to read a paper before the Society, he reads it and at its conclusion, as a rule, apologises profusely for the mistakes he avers it contains. Then comes the time for discussion and different gentlemen rise, and after repudiating the speakers remark concerning their mistakes, and using various complimentary terms to express their appreciation of his paper, immediately proceed to differ from him upon one of its main points. After this has gone on for some time, each criticiser choosing a different point, the gentlemen naturally begins to feel just a little bit aggrieved and may be seen going round the hospital the next morning remarking that Mr. so and so was a little bit hard on him, and that he thought it cheek of old so and so saying what he did, and that it would be a long time before he read another blank paper before the Students' Society, and with one or two more remarks, and one or two more blank blanks he passes on to tell the same to the fellow at the next chair.

But how different when it is called a debate, far from apologising for your mistakes, you glory in them, every mistake means more discussion, and as each of your points is torn to threads by successive speakers you sit back in your seat and say what a glorious debate.

Having now explained, and I hope justified the substitution of the word debate, I should just like to say that in order that the meeting may not fall flat, it has been arranged that besides one speaking in favour of the subject and one against it we shall have, so to speak, a sort of sideshow in the person of Mr. Campbell, if he will pardon the term, who will speak on the advantage or disadvantage, I do not know which side he has taken, of a medical degree for dentists in the colonies.

After this rather lengthy preamble I will at once pass on to the subject of the debate: "Is a Medical Degree of advantage to a dentist?" and for the better answering of the question I propose to deal with it in this way! Does the obtaining of a medical degree make one a better dentist? Let us consider for a little while how the time of a dentist, say one who has taken the conjoint, is distributed in an average practice and having formed a fair estimate of the demand, we can consider the supply required.

Is his time spent in diagnosing and treating obstruse and

obstinate diseases? Is he to be found performing any of those major operations in which it is considered he should be so well read? Is he in short to be found putting into practice any of that surplus knowledge for the obtaining of which he was content to spend two years over and above the time taken to obtain the L.D.S. No, I think if you were to drop in upon him you would find him in nine cases out of ten engaged in the more prosaic operation of filling a tooth or fitting a denture, in fact, busily engaged in the very things that he was allowing to rust whilst he was pursuing his studies in another, and I think, misguided direction.

But for a man to rise to the top of his profession it is not enough for him to be proficient in 90 per cent. of his work he must also be prepared for the remaining 10 per cent., the detecting of more deeply seated diseases in patients who come to him for dental treatment. Now let us suppose such a patient comes into the hands of a conjoint man, I mean one who has also the L.D.S. and is practising dentistry, what does he do if he is fortunate enough to spot it? Does he take the case into his own hands and, if necessary, perform an operation himself, or does he do exactly the same as his more practical brother the L.D.S. and pass it on to some higher authority, I think the latter.

Having settled what each would do with regard to treatment, we must next consider whether the L.D.S. is a sufficient education for the diagnosing of these cases, and if we prove it to be so, as I shall endeavour to do, then the conjoint becomes superfluous. What must a man know to take the L.D.S.? He must know the general anatomy of the body and his head and neck perfectly. He must know the great principles of General Surgery and be able to undergo a searching examination on the diseases of his special region. He has therefore a thorough knowledge of his special part both in health and disease. Now in what direction does the taking of the conjoint advance this knowledge?

In Anatomy does he know his head and neck? In surgery does he learn more about the diseases of the oral cavity? Does he not rather bring his studies of other regions, which have no relation to his after practice to the same height as that region which it is absolutely essential he must know, and would it not be better for him to spend this time, which he is to a certain extent wasting, in becoming more proficient in those branches which constitute the major part of his profession. I allude more particularly to Mechanical Dentistry.

It is in this direction that I think all one's surplus energies should at first be directed. No one can say at the end of their three years mechanical course that they have more than a surface knowledge of mechanical dentistry, and if after thoroughly mastering the intricacies of this branch one is still fortunate enough to have time left for perfecting oneself before launching into practice, let them carry to a yet higher state of perfection those particular branches of medicine and surgery which pertain to Dentistry, rather than advancing a little way into those broad fields of general medicine which not even our greatest practitioners have as yet got more than half way across.

No doubt it will have been noticed that I have as yet laid but little stress on that other great branch of the Dentistry of to-day, the more strictly surgical operations of filling and extracting teeth, and that I may have seemed to have placed the value of a sound mechanical training before this. Such was not my intention, but I think you will all agree that a newly qualified dental surgeon has far more opportunities in his after career of perfecting himself in fillings and the like, every day finds him busily engaged in putting into practice those principles which have been instilled, and in most cases well instilled into him whilst at the hospital. But not so with Mechanical work, a man is not going to pay £4 or £5 a week for an operator, and then let him spend a lot of time doing work that he could have done quicker and better at about half the price.

I have perhaps not entered into what I consider the other side of the question, namely, Does the possession of a medical degree lead people to imagine you are a better dentist and so assist you in obtaining a larger and better class practice, on the supposition that this is the line of argument that Mr. Humby will adopt, should this be so and to me it is the only reasonable one in its favour, then it is left to the meeting to weigh my arguments with those of Mr. Humby's, and having arrived at a conclusion to vote accordingly. All I say on the point is this, that in my opinion, a good dentist, whether many lettered or not, is sure to come to the front, and that quickly, whilst a bad dentist, even though he have after his name, all the letters of the alphabet in algebraical combinations will soon be forced to leave dentistry, and seek pastures where unlike dentistry one can prosper on theoretical successes alone, and say hang to the practical.

Dr. MORGAN HUMBY.—Mr. President and Gentlemen, The

few remarks which I have to make as an opening to our debate, will not necessarily touch all points concerned, and are as they appear to me as a student, and no doubt I shall, as other men have, in a few years' time know more of the advantages a medical diploma is to a dentist.

On going over the dental curriculum it appears to be an ideal one, from either point of view, theoretical or practical, but looked at from a "get through exam." point of view, permits of a considerable amount of evasion, and where you have a body of students, there is a fair proportion who look thus at it.

As an instance, we are supposed to attend a long course of Medical Lectures. Does the average dental student learn anything from them? I say practically nil. He never opens a book on the subject, and only occasionally takes notes, and then probably on some complaint he thinks he may be suffering from himself, or else more likely he is thinking of the pleasure of putting in a gold filling that he has waiting for him at the Dental—this being the only work he does in his second year, and because of his exam.

The amount of knowledge necessary for us to practise dentistry is represented by the L.D.S. exam., but this is the minimum quantity. Consequently there is found in this, as in all other professions at the present time, a desire for broader knowledge and further qualification. There are some who advocate a higher dental degree. This is a subject that has been much discussed, and the majority of older men have come to the conclusion that there must be no complication of Dental as there is of Medical degrees, and consequently the British Public who are poorly educated in dental matter will come to know that L.D.S. means dentist.

What is more natural than that the student who wishes for further qualification, should turn to the subject with which we are not connected during our career and turn to the main subject of which we are in reality a branch.

By so increasing the number of doubly qualified men the gap which has existed between medicine and dentistry will be gradually narrowed up, and thus the social standing of the whole profession will be raised.

Has not the position of dentistry as a recognised profession been brought about by men back in the fifties, whose only method of securing a professional standing was by taking a medical qualification, and therefore it behoves some of us who are in a position to thus qualify, to do so and to keep on

advancing the well-being and true interests of the profession.

Judging by the steady trend of the dental exam., it appears that those in authority have it in view to attain as near to a medical degree as possible, and consequently in a few years' time, a purely medical degree will be easily obtainable with very little extra work. The main argument against taking a medical diploma at the present time is the chance of skimping the practical work. The remedy is to make a general stiffening of this part of the exam. For the mechanical exam. a week's continuous work would not be too much, and this would do away with any slackness during pupilage, as the student would know that it is not then a question of luck, or to only show the examiners he had got the idea.

Also in the operative exam. one gold filling is not enough to test a man's ability, and should he know that he will get something of everything, you may be sure that he will take care to be proficient.

Another, at the present time, to the obtainment of posts in our General Hospitals and Institutions, and also in our Dental Colleges where it is essential that the teacher should be considerably better educated than the pupils.

MR. THORNE said, Mr. President and Gentlemen; I do not think we could have had a more interesting or important subject to open the new Session with, than the one under discussion. There are a number of new students here who have perhaps not quite made up their minds as to the advantages of the double qualifications combined with the L.D.S., and a debate of the kind will no doubt influence them considerably. The mere question of additional letters after one's name means very little as dentistry stands at the present day, especially in the eyes of the public. A man who is merely registered, against whom we have no right to say a word, providing he carries on his practice without advertising, a registered man then is allowed to call himself R.D.S. Eng., and we cannot expect the public to distinguish between him and the qualified man. Again a man can join the British Dental Association and put on his plate M.B.D.A. The man who works hard to pass his exam., and who has in many instances made great sacrifices to become qualified, finds unfair competition on all sides, and when he protests he is told there is no remedy.

Unfortunately this is not the only thing the L.D.S. has to complain of, for not only has he to compete for his livelihood with these outsiders, but if for further advancement he tries

to get a hospital appointment, he finds he has a most unlooked for, and I think a most unfair opposition from the conjoint men holding the L.D.S. diploma. In some cases this opposition has been systematic and organised, and he is told point blank he will probably not get the appointment, not because he is inefficient as a dentist, but because he does not hold the Medical degree, I think, sir, this is most unfair and a great shame. When a man qualifies as a dentist in England, he does so knowing the L.D.S. is the one and only exam. in dentistry, then why should other qualifications, which do not conduce to make a man a better dentist, have these other side things thrown at him and used against him.

The struggling L.D.S. finds himself between the devil and the deep sea. If the L.D.S. wants to make himself a better dentist and has the time and money, why not go to other countries and study other methods of practice? If he does this he will be better qualified in the work in which he will be actually engaged, and not crammed.

Mr. S. F. ROSE said that the supporters of Mr. Hamilton's views seemed to have argued mainly on the basis that because a dentist had taken the conjoint, therefore he was not such a good practical man as the average L.D.S. without it. Was this a logical argument? He thought not. They had both done just the same amount of practical work in their curriculum, so why should they not turn out equally good practical men in the end? He thought it very wise for a dentist to take a practical course in America, but the L.D.Ss. who did this instead of taking the conjoint were not much in evidence, they always seemed in too much of a hurry to get into practise and earn money, and he could not altogether blame them. He thought it perfectly right that conjoint men should be given the preference in hospital and school appointments; other things being equal, surely a man with a medical qualification is better for such an appointment than one without.

He considered that the amount of Anatomy and Surgery required for the L.D.S. exam., as quite sufficient for all the ordinary needs of a dentist, but regretted that to most students it simply meant so many words crammed up from books and not facts gathered from clinical study in the out-patient department, etc. In deciding whether to take the Conjoint, or not a student ought to consider what his future prospects were likely to be. For country practice perhaps there was little advantage in it, but in London, and especially for hospital and school appointments it was essential, and if

the man possessed it, he had the potential within him to rise to the very summit of his profession.

Mr. GUDGEON thought Mr. Humby's exposition of the advantages of the Conjoint in connection with the L.D.S. was rather weak, and should like to have heard well—some other man, that it was very difficult to eliminate from the discussion of this delicate subject some little warmth, but he did not think that the taking of the conjoint made a man a better dentist, or more qualified than a simple L.D.S., to hold an appointment at a hospital. He also thought that the M.R.C.S., L.R.C.P., were the lowest qualification one could practise medicine with, and thus they of themselves would carry no weight in securing such an appointment. He remarked that there were several branches of dentistry, such as bridgework, not touched by our exams., in which a man might more profitably spend further time in acquiring a knowledge, than a deeper one of surgery and medicine. He could not agree with Mr. Relph that a Conjoint man was necessarily better educated than an L.D.S. two years after qualifying, as medicine and surgery were not the only fields of knowledge.

Mr. ARTHUR E. RELPH. There is one point that always strikes me in discussions on to-night's subject, and that is that the objectors to the double qualification are invariably those that have only taken, or are only going to take the single, and consequently only know one side of the question, and not having experienced the advantages are unable to appreciate them; in the same way they speak of its disadvantages such as loss of skill and practice, how are they in a position to judge of this? Whereas a man who has obtained both qualifications is in a position to speak of both sides. I remember the views I held myself when I obtained the L.D.S., and the views after obtaining the membership, the extra study and the larger field of work undertaken to obtain the medical qualification must enlarge one's views and give one a wider horizon, which is surely an advantage, and as for the loss of skill that some lay such stress on, this will depend very much upon the man and upon what skill he obtained when at the dental school. I am quite convinced that any man who had obtained a thorough grounding in his work before taking up his purely medical studies will find he has lost very little when he comes to resume his dental work. Another statement made to-night is that a man holding the double qualifications is not better educated than one holding the single. Surely this cannot be so if a man has devoted time and study

in obtaining a degree not even bearing directly on his professional work, as for example the M.A., he is not better educated than a man who has just sufficient classical knowledge to register as a student? and is not this still more true in the case of the double qualification which bears so directly on our dental work, and as I suppose no one would say that it is not an advantage to be better educated, I should without a moment's hesitation answer the question under debate in the affirmative.

HERBERT J. RELPH. I have on several occasions heard this subject discussed at meeting of Dental Societies, but never at a Students' Society, and I am very pleased to have the opportunity this evening of hearing students' views upon this most important question, because it is a more important question for students than for anyone else, since it is of no use regretting that one did or did not take certain diplomas after one has finished one's hospital career.

I notice that the wording of the subject for debate is "Is a surgical diploma of advantage to a dentist?" not Is it a necessity? Now to my mind I do not think there can be a doubt upon the point, it is not a necessity, but it is an immense advantage.

If you take two men, one having the L.D.S., only and the other the M.R.C.S. as well, provided they are equally good from a dental point of view, and are both first class operators and practical mechanical men. I am sure no one will say that the man with the surgical diploma is at a disadvantage through having it, and I think most will say that it is a distinct advantage to him. I do not mean the fact of being able to put M.R.C.S. after his name is an advantage to him, but the experience it represents.

I certainly grant that if a man, in order to take the M.R.C.S. has neglected his dental work and in the end is a poorer operator than he would have been if he had not taken it, then it is a decided disadvantage to him, and he would have been much better without it. But whether this is the case or not entirely depends upon the man, and I think that is the secret of the whole question. Of course it means more time, more money, and more work; but given a suitable man who can afford the time and money and is not afraid of work, then let him take the M.R.C.S., and he will be a better man for it, and will have no cause to regret it. I think the advantages of taking the M.R.C.S. are seen in the broader

views he has on all surgical matters as the results of his training, and the greater self-confidence it gives him. Also I think a man is wise to take the M.R.C.S. as things are at present, if only with the object of safe-guarding himself. One has heard a great deal lately as to the advisability of instituting a higher dental diploma or even of making the M.R.C.S. compulsory, and a man who is a student now should remember that he has to look beyond his student days ; it may be that shortly after he has left the hospital some new diploma may be instituted, and he may not be able to avail himself of it, though he will have to compete with men who have it. But if he has the M.R.C.S., such possibilities need not trouble him, as it would have to be a good diploma that would rank better than the L.D.S., M.R.C.S.

NORMAN BLACK :—

Mr. President and Gentlemen,—Mr. H. J. Relph has just told us that when he possessed only the qualification of L.D.S. Eng., he was for ever haunted by the idea that he might sometime be faced with some condition he did not understand. When, however, he had obtained his M.R.C.S., and gentlemen. he tells us that it is but a very short step from L.D.S., R.C.S., to M.R.C.S., he then had no longer any fear that such a contretemps might arise. Gentlemen, this is marvellous, and it is a consummation devoutly to be wished, is it not? Personally I should have thought that, had a man taken all possible degrees in Medicine and Surgery, aye and in every other subject, he would still be in imminent danger of being sometime confronted with a condition he did not understand. This is perhaps somewhat beside the point, but certainly the Royal College of Surgeons requires us to take a thorough grounding in general work, and certainly well outside the mark of what is necessary, so I must stigmatize the two or three years spent in obtaining the conjoint diploma as years of practical experience lost. There is no doubt that in that time, the Dental man's hand has had a good chance of losing a considerable amount of its cunning ; and he is so much behind his brother who went straight on after taking his L.D.S. But, gentlemen, it seems to me that the great point has been missed. The Royal College of Surgeons grants us our Diploma in Dental Surgery and fixes the standard (no mean one), at a certain height. That then constitutes the proper qualification, why enter into other details which only mystify the Public.

Should the R.C.S. see fit to raise the standard, well and good, even if they take in the whole conjoint exam., and make it essential, there is no cause for grumbling; and no one can say that we should have murmured had it come in our time, it will then be the standard, but, Gentleman, let us have a standard, and let it be sufficient qualification for hospital appointments.

I think there can be little doubt that for his own benefit, and for that of his patients, a dental surgeon will do more by adding to his L.D.S. qualification a fund of practical experience, and thus passing straight forward on his road, than he will by diverging from his course and wandering down what at best must be considered somewhat of a bye-path.

Mr. CHARLES W. GLASSINGTON brought forward an interesting case of a Composite Odontome, but as the hour was so late no discussion took place.

Mr. S. F. ROSE had made a section of it, which was exhibited, and re-reported as follows:—

To the naked eye the growth appears as an irregular mass of porous, bony-looking tissue surmounted by a shell of enamel not very firmly connected to it, and reminding one rather of the hollowed crown of a carious molar.

On sawing the mass through (a somewhat difficult process owing to hardness and friability), the cut surface appears fairly dense, but lacking uniformity of texture having a somewhat marbled appearance.

Under the microscope. The shell resembling the hollowed out crown is seen to be composed mainly of enamel of a fairly ordinary type, but the main mass consists of a confused conglomeration of all the hard dental tissues, the tendency of the arrangement seeming to be towards the formation of columnar, circular or ovoid denticles, the two latter presumably being transverse or oblique sections of the former, the whole somewhat suggesting the appearance produced by the intricate branching columns of an epithelioma seen in section, the denticles representing the epithelium of the cancer.

Each column or peroidal mass is made up of hard dentine of a fairly regular type, clothed with enamel (which however is absent in some), and arranged around a central space representing the pulp chamber of a normal tooth. Some of the pulp spaces are filled up with coarsely deposited lime

salts in which the spherical granularity of deposition is well seen. This latter one might compare to the secondary dentine so often found.

The enamel is mostly deeply pigmented a brown colour, like that of the Brown Strial of Retzin.

The whole is fused together by a coarse type of cement the lacunæ of which remind one rather of the irregular spaces of 'Tomes' granular lager than proper cement lacunæ.

As the section was taken from the mass in a dried condition nothing can be said about any soft tissue in the pulp spaces, though judging from analogy, one would expect it to be there, if so its nutrition must necessitate a very intricate system of blood vessels and nerves.

At the conclusion of Mr. Rose's description of Mr. Glassington's Casual, the President rose and said he had been called upon to make a very interesting presentation on behalf of the students, to Mr. Black, of a silver card case as an appreciation of his kindness and skill whilst house-surgeon. He called on Mr. Black to come forward.

Mr. BLACK in reply said:—

Mr. President and Gentlemen, I thank you very heartily for this expression of your regard. I shall always be very proud of it, and shall remember with the greatest pleasure the kind things you have said of me. We are all of us very proud, gentlemen, of any prizes that fall to our lot as students, but believe me, none ever gave me half the gratification that this gift of yours has done. When my term of office as House Surgeon expired, I left the good old National Dental Hospital with feelings of real regret, for it has been a pleasure and an honour, to be and to work among you. Come what may, I shall ever be proud to have been a student and House Surgeon of the National, and whatever part of the world claims me, when I come to be settled into practice, I shall always have a warm corner in my heart for, and pleasant memories of my old hospital. Gentlemen, I thank you.

The meeting then adjourned to the Common Room where refreshments were provided.

Dental News.

GENERAL MEDICAL COUNCIL.

The opening meeting of the seventy-second Session of the General Medical Council was held on November 26th, at the offices of the Council, 299, Oxford Street.

The chair was taken by the President, Sir William Turner, who delivered the customary presidential Address. In the course of his speech he stated that the Council would have before it on the following day seven registered practitioners who were charged with habitually employing for the sale of scheduled poisons persons not qualified to act as chemists or pharmaceutical assistants. Such a practice was contrary to the Pharmacy Act, and was fraught with danger to the public. The council, he thought, would have to consider whether the time had not arrived to issue a definite declaration on the subject for the information of the profession generally. With regard to education, a report might be looked for from the Education Committee as to the steps which they had taken to carry out the recommendation of the council that the standard of preliminary education required by some of the examining authorities should be raised. One of the questions referred to the committee was the suggestion that, in addition to the examination in general education on which the present registration of students was based, a second or scientific registration of students who had passed in chemistry, physics, and biology should be established, and that the period of medical study should be four years after the second registration. He could recollect the day when some of the leading examining bodies in the profession gave their diplomas to candidates whose general education had never been tested. Now, as the result of general agreement among the examining bodies, a Students' Register had been established, and no candidates were admitted for professional examinations unless they had previously passed an examination on subjects of general education. In that way an influence for good had been exercised on the training of the

younger generation of practitioners, and he (Sir W. Turner) confessed that he regarded with apprehension a movement which, by the withdrawal of one or more of the qualifying bodies from an agreement in which all had concurred, would destroy unity with regard to students' registration, and would nullify the influence of the council.

A vote of thanks was accorded to the president for his address, and the remainder of the sitting was principally devoted to a discussion *in camera* with regard to alterations of the standing orders dealing with penal removals from the "Medical Register" and the "Dentists' Register."

ROYAL DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the Staff and past and present students of the Royal Dental Hospital of London, Leicester Square, was held at the Hotel Métropole on November 23rd. Mr. W. H. Woodruff presided, and the company, numbering about 140, included Dr. Washbourne, C.M.G., Mr. R. Winch, Mr. Cowell, Secretary of the Royal College of Surgeons, Mr. F. J. Hallett, Secretary of the Conjoint Board, Mr. W. B. Patterson, Dr. Eddowes, Mr. H. Waterhouse, Mr. W. A. Maggs, Dr. Hewitt, Dr. Harold, Mr. E. G. Betts, Mr. Morton Smale (the Dean), and Mr. J. F. Pink (Secretary).

The Chairman, in proposing the toast of "The Past and Present Students," said that the hospital, which by permission of the King had now prefixed to it the title "Royal," was the first dental hospital established in Great Britain, and since its foundation in Soho Square in 1858 it had included among its practitioners and students many men who had done much to raise the *status* of the profession in all parts of the world. At the expiration of 16 years the Soho Square premises were found to be too small to accommodate the increasing needs of the public and students, and a removal was effected to Leicester Square, where he was one of the first students to be enrolled. From that time the history of the hospital had been one of unvaried and continued success. During the past year they had removed into new

commodious buildings, and they had had a record number of entries, as many as 55 new students having had their names enrolled on the school books, and this in spite of a general diminution of entries at all the hospitals and coincidentally with a very considerable drop in the registrations at the General Medical Council. The work of the hospital also continued to increase at an enormous rate, and there had been upwards of 69,000 operations within its walls during the past 12 months.

Mr. E. G. Betts and Mr. G. Sheppard responded.

Dr. Washbourne, in proposing the toast of "The Hospital and School," said that during the past two years, while in South Africa, he had been more than ever impressed with the importance of dentistry, for he found there many men who were incapacitated from service on account of defective teeth, and he was sorry to say that one of the worst cases he found was that of a dental surgeon who was serving his country as a trooper in the Yeomanry. He referred to the progress which had been made in dentistry since the foundation of the hospital in 1858, and said that in connection with that progress the Dental Hospital of London had played no unimportant part. At the hospital during the past year over 40,000 teeth had been extracted, and upwards of 16,000 filled, while 350 people had been provided with artificial teeth. All connected with it owed a deep debt of gratitude to the Dean for his work in connexion with the new hospital buildings.

Mr. R. Winch, in response, appealed for assistance to pay off a mortgage of £55,000 upon the new buildings, towards which it is necessary to raise a sum of £4,000 each year, and himself promised 100 guineas towards that object.

Mr. W. B. Paterson also responded.

Other toasts followed.

CARE OF THE MOUTH AFTER TOOTH EXTRACTION.—Instruct the patient to keep the socket free of all food, and after each meal to use a mouth wash composed of one part listerin and three parts warm water. This will keep the sockets clean and antiseptic, and nature will perform the necessary repairs.—*Ohio Dental Journal*.

DIED IN A DENTIST'S CHAIR.

John Walker, 31, gardener, employed by the Earl Haddington, at Arderne Hall, and residing Tarporley, had suffered from toothache for some time, and he arranged to have nine teeth extracted on Thursday by the doctors of Tarporley. Chloroform was administered, and when seven teeth had been extracted he suddenly collapsed. The usual means were adopted to restore animation, but the unfortunate man died. At the inquest yesterday the doctors stated that they had previously examined the deceased and found him a subject for chloroform.—A verdict that death was due to misadventure was returned, the doctors being exonerated from all blame.

FOSTER'S DENTAL SPECIALITIES, LTD.

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ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following gentlemen having passed the necessary examination have been admitted Licentiates in Dental Surgery of the College :—

Thomas Beaumont, Francis Xavier Costello, Ben Farrar Cowper, and Edward Thomas Patley.

MAKING OF TEMPORARY CROWNS.

H. J. GOSLEE.

The operator who dismisses a patient now without resorting to some temporary method of replacing the lost crown does an injustice to both the patient and himself.

My method of making a temporary crown is a quick one, and I always have a selection of facings on hand, which all of us should invariably have. I first take a piece of German silver wire, fit it to the canal, select and grind the facing, and then attach it to the wire by clinching the pins; then remove it and place upon a charcoal or asbestos block, touch the parts with soft solder flux, chip or cut off a small piece of fusible alloy, place it in position, and turn the flame of the Bunsen burner upon it. The soldering is done in a few seconds then without danger, and the construction is complete. It is then mounted with gutta-percha or temporary stopping, and may be worn for some time. Such a crown can easily be constructed and applied in ten minutes.—*Dental Review*.

NITRATE OF SILVER FIBRE.—Soak long-fibre absorbent cotton in a saturated solution of nitrate of silver. Allow the water to evaporate and repeat the soaking twice. When dry it is ready for use, in a convenient form for applying underneath the gum margin or in pyorrhœa pockets. A small pellet may be placed in a shallow cavity to arrest decay, etc.—*Dental Digest*.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed
[Correspondents.]

THE ADVISABILITY OF A STANDARD OF KNOWLEDGE IN THE GENERAL SUBJECTS OF THE L.D.S. ENG. EXAM.

To the Editor of the "British Journal of Dental Science."

Sir, While the necessity for some knowledge in anatomy, physiology, pathology, and surgery to a dentist is apparent to all of us who hold diplomas, it must be obvious to the most casual observer that the extent of acquaintance with these subjects to which a dental student can attain in the space of two years, and in addition to his dental work, must of necessity possess a limit.

Few of us, I take it, would care to see the curriculum extended to any longer period, it already occupies five years (if the first three are given up solely to mechanical work, as ought to be the case), and, moreover, in these days whilst unqualified practice is rife among us, it is surely bad policy to place more difficulties than already exist, in the way of a man who desires to qualify and practice in a legitimate manner.

Those who can spare more time and money ought certainly to obtain an additional medical qualification.

The point thus arises—Would it not be a tremendous advantage and help to the dental student (and of no detriment to the standard of the examination) to have sketched out for him a synopsis of the anatomy, physiology and surgery he will be expected to know.

It is unreasonable to expect him to know as much as a conjoint candidate, for example, and yet it is practically impossible in the present state of affairs for his teachers to tell him what he can safely leave out.

A dental student who has a fair idea of pathology, the general surgery of injuries and the special surgery of the head and neck, might think himself sufficiently well prepared in this branch of his studies, but when he has *viva voce* examination, and is asked about fractures of the patella, dislocation of the shoulder, hernia, fistula in ano, hæmorrhoids, retention of urine, or what not, and is unable to answer it is obvious that he has not reached the standard that his examiners expect of him.

Under the circumstances, perhaps, one is justified in asking the question: What is that standard?

Yours etc.,

November 29th, 1901.

A TEACHER.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of OCTOBER, 1901.

Number of Patients attended	1379
Number of Extractions	649
Number of Extractions under Anæsthetics	435
Gold Stoppings	242
Other Stoppings	380
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	327
Gold and Porcelain Crowns	22
Inlays	0
Total	2065

W. WRIGHT, L.D.S. Eng.,

H. HOPKINSON, L.D.S. Eng., *House Dental Surgeons*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only, and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.

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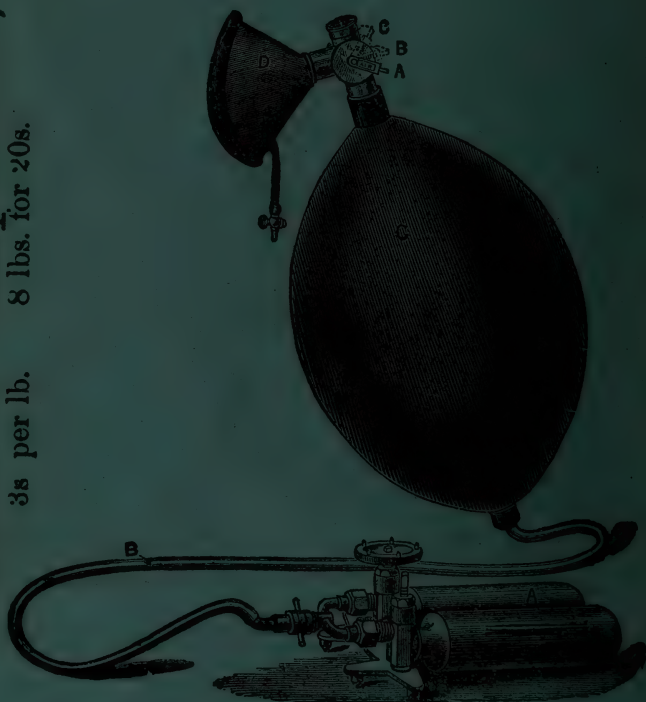
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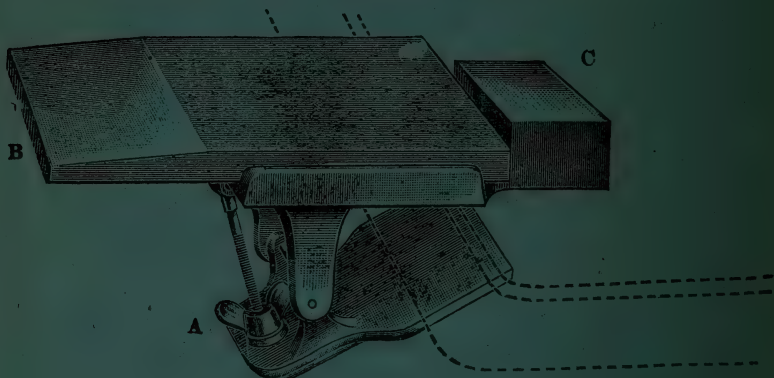
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This Journal is published **TWICE A MONTH**, on the 1st and 15th.

Advertisements should reach the office by the 10th and 25th.
N.B.—This Journal, having by far the largest circulation of any English Dental Periodical, is the best medium for all Advertisements, and its Edges being cut throughout, all the Advertiser's must be seen.
The Journal is supplied direct from the Office, to any part of the world, post free, for 14s. per annum, 7s. Six Months, 3s. 6d. per Quarter, payable in advance.

No Subscription can be discontinued before the end of any one year.

A month's notice should be given in writing by subscribers wishing to terminate their subscription before the end of the year. All subscribers not giving such notice will be considered subscribers for the following year.

Cheques, Post Office Orders, or Postal Orders should be crossed and made payable to the order of G. E. SKLIROS, 289 & 291, REGENT STREET, W.

NOTICE TO ADVERTISERS. Letters for advertisements appearing in our Journal are allowed to be addressed, free of charge, at our office, c/o us, for yearly Subscribers only. The Subscriber's name must always be given to us, in confidence. All advertisements must be prepaid to insure insertion.

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- As Improver. Have good reference. Disengaged at beginning of New Year
Age 20. F. Kelly, Drill Hall, Holdenhurst Road, Bournemouth.
- As Operator by L.D.S. Eng. Belsize House, Walsall.
- As Mechanic. Age 25. Good metal and vulcanite worker. References.
Can extract, fit dentures, take impressions if required. Disengaged
December 28. "L.," 35, St. Helens Avenue, Swansea.
- By good all-round Assistant. 11 years' experience. Age 26. "Mechanic,"
423, Stockport Road, Manchester.
- As Mechanical Assistant, well up in vulcanite and plate. Assist in surgery.
"C.," Oakden Street, Kennington Road.
- Assistant, Operating and Mechanical. Can take sole charge. First class
Operator. Permanency desired. "B.," 35, Jackson Street, "Groves,"
York.
- By good all-round Mechanic. Can assist in surgery. First class references.
"F. G.," The Lawn, Sutton Common, Surrey.
- By Experienced Operator and Mechanic. Registered. Disengaged. Salary
and commission. Management. "G.," c/o J. P. Segg & Co., 289, Regent
Street, W.
-

WANTED Locum or Assistantship till May, qualified in
all Dental subjects. "S. A.," c/o Messrs. Ash & Sons, Ltd., 118a,
Oxford Street, Manchester.

WANTED good all-round Assistant, from December 20th
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For particulars address "Licentiate," c/o Sherwood & Hart, Solicitors, 34,
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DENTAL Surgeon recommends his late pupil. Excellent
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WANTED an Assistant able to take charge during Principal's absence. Age 23 to 26. Permanency to suitable man. State salary references, and full particulars, with photo, "Forceps," c/o Lemale & Co., 53, Haymarket, London.

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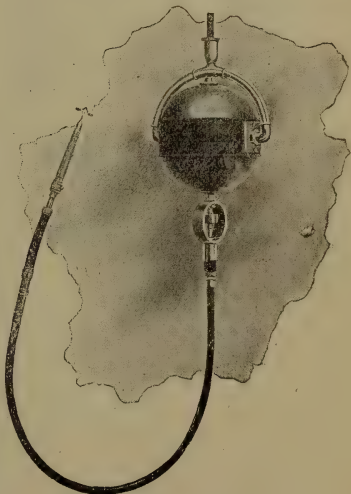
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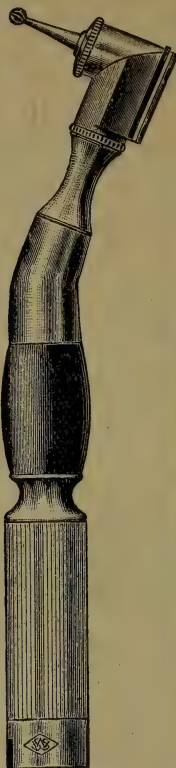
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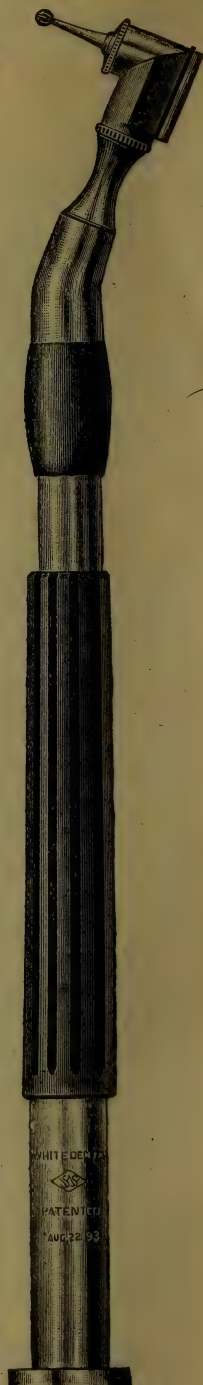
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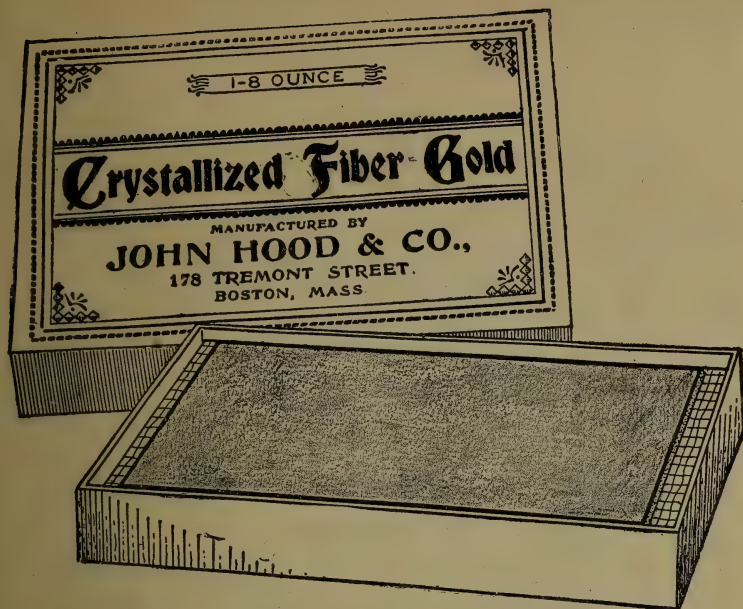
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<p>No. 2</p> <p>PURPLE</p> <p>TINT</p> <p>Dark</p>	<p>No. 2a</p> <p>PURPLE</p> <p>TINT</p> <p>Light.</p>	<div style="border: 2px solid black; padding: 10px; position: relative;"> J. W. <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">&</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">C^o</div> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">V</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">.</div> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">2</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">3</div> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">a</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">s</div> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">&</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 2em;">C^o</div> <div style="position: absolute; top: 10px; left: 10px; font-size: 2em;">J. 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GEE'S



SCIENTIFIC



GOLD ALLOY.



The Newest Departure in Amalgams.

		Formula.	per oz.	per $\frac{1}{2}$ oz.
No. 1 or "General"	Au. Ag. Sn.	25/-	
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NOTE.—Absolute purity of all metals employed is the secret of a perfect amalgam that shall maintain and retain all requirements of a filling and keep its colour. With these "Scientific Alloys" no expense has been spared to obtain purity in its highest chemical sense, and the results obtained will be found to warrant the outlay, great as it is in comparison with ordinary so called "Fine" metals hitherto in use.

Many dealers and even refiners are unaware of the distinction between "1000 fine gold or silver" and "chemically pure gold or silver and other metals" which may be ascertained by reference to the world-known Messrs. Johnson, Matthey & Co., Hatton Garden, London, the Government Assayers. "Fine gold" is usually about 999.05, and "chemically pure" gold 999.96 in 1000.00, when all trace of impurity is practically lost.

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We have private and special scientific processes of melting, cutting, mixing, ageing and purifying our alloys, which are considered superior to any methods hitherto known.

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We regard the use of our chemically pure mercury as essential to perfect success in using our amalgams.

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Porcelain Teeth.

BEGINNING at Vienna, in 1873, where we made our first display, we have received successively at the Six World's Fairs the **Highest Award for ARTIFICIAL TEETH**; this being the most important branch of our business and all that we exhibited.

The greatest proof ever extended for Superiority to any Manufacturer of **PORCELAIN TEETH**, for their Strength, Adaptation and Natural Life-like Appearance, was received by us through the Report of the Judges, Centennial International Exhibition, 1876.

==EXTRACT==

FROM THE

General Report of the Judges on Awards of Group
XXIV.

"H. D. JUSTI EXHIBITED NOTHING BUT TEETH, but his display was beautiful in the extreme. In colour, translucency and texture, they were all that could be desired; they were a faithful reproduction of the physiological characteristics of the natural organs, both to the individual teeth and relatively to the entire set. Their conformation with reference to close and easy adaptation to the maxillary arch showed careful study of the needs of both patient and operator. Their various and numerous deviations from uniformity of arch and outline, simulating the irregularities of nature, was so perfect that when in the mouth no suspicion of their artificial nature would be entertained. The disposition of tooth-material was so skilfully managed as to secure the greatest amount of strength with the least bulk; and the insertion of platinum pins was so arranged as to render their displacement an almost impossible accident."

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PRINCIPAL DEPOT—1301 & 1303, ARCH STREET, PHILADELPHIA.
BRANCH—96, STATE STREET, CHICAGO.

SIX WORLD'S FAIR MEDALS

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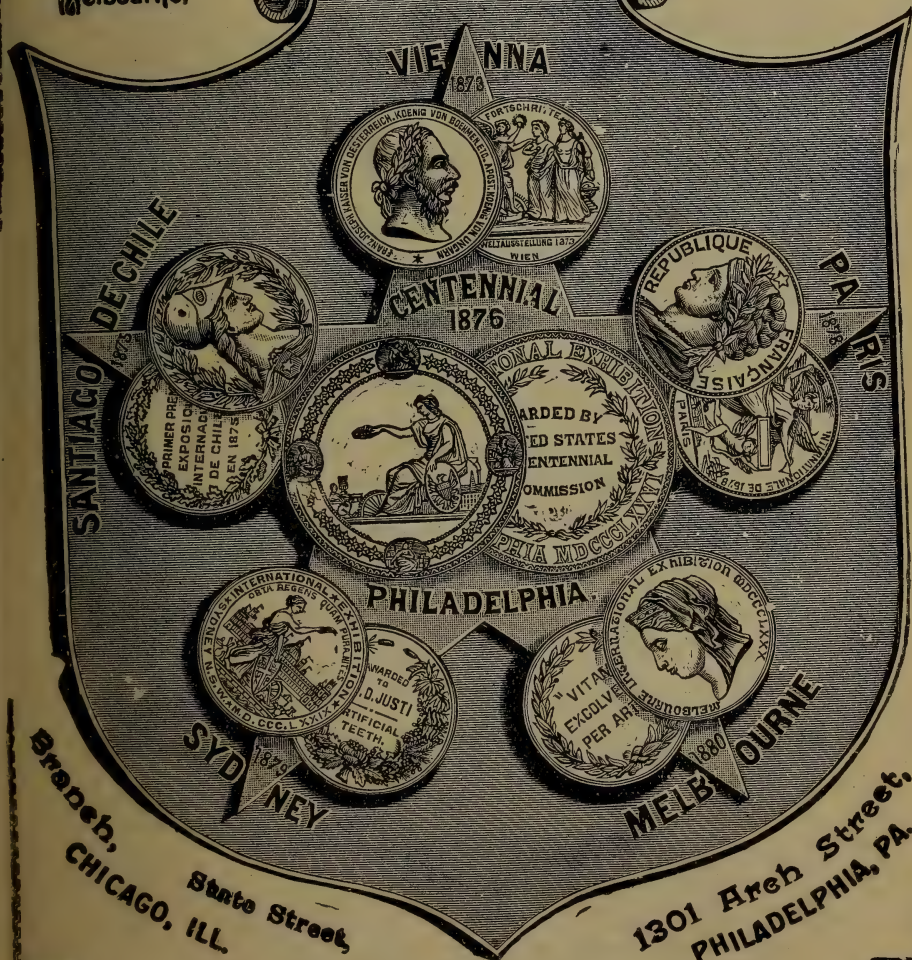
Highest Order of Merit Awarded for Superiority

—AT—

Vienna, Chili
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—TO—

H. D. JUSTI,
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With the best Makers
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C. J. PLUCKNETT & CO.,
28, 29, 30, Poland Street,
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PINK RUBBER,
12s. per lb.

Send for free Sample.

Old D. Alloy and Platinum Pins Wanted.
Best Market Prices given. Bars Bought by Assay.

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REFINERS & PURCHASERS OF

GOLD, SILVER, PLATINA.

LIMELS, SWEEPS, and all materials containing the Precious Metal. Consignments from the Country attended to with dispatch. Bars bought by Assay.

J. H. BALDOCK'S SPECIALTIES.

(HIS OWN MANUFACTURE).

NERVE DESTROYING PASTE or JELLY. A Painless Devitalizer Universally used for the last 20 years. 5/- a Bottle.

ANTISEPTIC TOOTH DRESSING. A Nerve Pain Obtunder, Deodorant and Germicide. Successfully employed for 12 years. 4/- a Bottle.

BACTERICIDE, GERMICIDE, PARASITICIDE. A Reliable and SAFE Deodorant, Disinfectant and Germicide. It is very easy and pleasant to use, and thoroughly efficient. Non-poisonous. 4/- a Bottle.

SOLUTION OF COCAINE—Neutral. This is the only absolutely SAFE, RELIABLE and PERMANENT SOLUTION of Cocaine ever introduced; per cent. 4/- a Bottle.

ANTISEPTIC ROOT FILLING. Insoluble, Unchangeable, Undecomposable, Impermeable. 3/6 a Bottle.

Sole Agents for above: **C. ASH & SONS, Broad St. Golden Square W.**

In Form,
 In Strength,
 In Texture,
 In Adaptation,
 In Naturalness,
IN EVERYTHING

Which contributes to the desiderata of
ARTIFICIAL TEETH, the product
 of Consolidated Dental Mfg. Co., is
 unexcelled.



Desensitor is a harmless local anæsthetic, composed of Hamamelis, Alcohol, Iodoform, Baptista, and one per cent. Cocaine, compounded together, for desensitizing the gum tissues while extracting teeth. Desensitor will not produce sloughing of the gums or any other injurious effects.

Desensitor is supplied to Dentists, in wide-mouth one and two ounce glass bottles, bearing full directions for its use.

Prices : 1-oz. 1.00dols. ; 2-oz., 2.00dols. ; 5-oz., 5.00dols.

Manufactured by the

Consolidated Dental Manufacturing Co.,

115, WEST 42d STREET, NEW YORK.

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Chicago, Ill.	Philadelphia, Pa.	Brooklyn, N.Y.	Baltimore, Md.	Providence, R.
Boston, Mas.	Atlanta, Ga.	New Orleans, La.	Cleveland, O.	Buffalo, N.Y.

For sale by the principal Dental Depôts throughout Great Britain

GEO. POULSONS

New Mineral - Plombe

IMPROVED FORM.

The crystallized-liquid for this cement instead of being supplied as hitherto in one bottle, is now put up in 4 small oblong bottles, which can be heated to dissolve the crystals, thus entirely dispensing with the use of the platinum heating-spoon, and having the further advantage, that only one quarter is in use at a time, whilst the remainder is kept impervious to the atmosphere.

My "New Mineral Plombe" having now been in use for 24 years, can be recommended to the profession as the **best Plastic Filling Material** on the Market. This stopping is, and will always be, prepared exactly after the old formula, and I can therefore guarantee an unequalled and uniform quality,

his Stopping is made in 12 colours, viz.—

- No. 1—White, No. 1a—Yellow White, No. 2—Bluish,
 No. 2a—Bluish Grey, No. 3—Light Yellow,
No. 3a—Light Yellowish Grey, No. 4—Dark Yellow,
 No. 4a—Dark Yellowish Grey, No. 5—Light Grey,
 No. 5a—Greenish Grey, No. 6—Dark Grey,
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Price per Packet, containing 30 grammes powder and 4 small bottles fluid 7s. 6d.

Price per Packet, containing 4 different colours of powder and 4 small bottles fluid, 10s

A mahogany box, containing 6 different colours ea. 30 grammes and 24 small bottles fluid, 2 spatulas and a glass slab for mixing complete, 45s.

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THE HYGIENE OF THE MOUTH.

A GUIDE TO THE

Prevention and Control of Dental Diseases.

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"We have carefully read the whole book.....the Dental Practitioner will do well to make himself acquainted with its contents."
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The Diseases of Children's Teeth.

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"ITEMS OF INTEREST."

A monthly magazine devoted to dental art, science and literature, established 1878 Edited by Dr. R. Ottolengui. Published by the Consolidated Dental Manufacturing Co., New York.

The special features of the magazine are as follows:—

First—It publishes more original matter than any of the other dental journals, and by "original" is meant matter prepared especially for its pages, not papers which have been read elsewhere.

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The subscription price is only 8s. 6d. a year, including postage; you can order it through your dealer.

R. S. Williams' Gold

Is known to every dentist in the world as the "King of Filling Materials," on account of it excelling all others both in respect to results achieved and the ease with which it can be manipulated.

R. S. Williams never made a gold filling which would last a month or a year only. When after hard labour he produced something worthy to be given to the profession, it proved also to be a lasting tribute to his inventive genius.

Remember R. S. Williams' Gold Specialities have been in successful use for more than a QUARTER CENTURY.

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For sale by the principal Dental Depôts in Great Britain.

British Journal of Dental Science.

No. 807. LONDON, DECEMBER 16, 1901. Vol. XLIV.

PRESIDENT'S INAUGURAL ADDRESS.*

By W. A. MAGGS, L.R.C.P., M.R.C.S., L.D.S.Eng.

GENTLEMEN,—My first duty in addressing you to-night is to give expression to two feelings which are uppermost in my mind ; my personal gratitude to the members of the Odontological Society for the confidence they have reposed in and the privilege they have bestowed upon me ; and my sincere desire to merit that confidence by an honest attempt to maintain both the efficiency and dignity of this chair.

I am in no wise forgetful of the fact that the Presidency of this Society is associated with the names of many illustrious dental surgeons ; men revered not only for their scientific attainments, but also for the more subtle personal qualities of mind and heart, which commanded the respect of their fellow men ; and while I dare not assume such a position, I may still aspire, by the generous help of the Council and members, to the lofty ideal which tradition has handed down.

* Read before the Odontological Society of Great Britain.

I can only say I will do my best, and trust that the coming session may prove as fruitful in progress as any that has preceded it.

Year by year our profession has been creating for itself by the skill of its practitioners and the triumphs of its schools so distinctly acknowledged a position, that medicine, surgery and dentistry form a Triad of Mercy in the cure of human ills. It seems almost as visionary to look back to the blacksmith's forge as the first home of dentistry, as to realise the barber's shop as the nursery of surgery; and although we cannot anticipate that this new century may reveal so astounding an evolution for our profession as that which has passed, still scientific progress is so rapid and new discoveries so frequent—both marked by mechanical triumphs as much as by surgical achievements—that we may hope dentistry will claim its full share in both departments.

We cannot enter upon a new session without recognising that it is memorable in our annals as coinciding with the advent of a new century, with the accession of a new Sovereign, and what is of personal interest to ourselves, with our entry upon a new home. Time, person and place have united to give to this session an atmosphere of freshness and should inspire us with new ambitions, hopes, and happy prospects.

The new century opens with many scientific aids to our work, notably in the Röntgen rays, and in the more perfected forms of electric motors for dental engines, mallets and lathes, and also in the improved forms of swagers and in numerous kinds of furnaces for porcelain work.

The new Sovereign, His Majesty King Edward the Seventh has allied himself to medicine and surgery by graciously accepting the Honorary Fellowships of the Royal College of Physicians and of the Royal College of Surgeons, while he

has become both Fellow and Patron of the Royal Medical and Chirurgical Society.

May we not hope in no distant future to have so consolidated and perfected our own branch of surgery that we may be allowed to ask a similar distinction for dentistry?

This session brings with it some satisfaction to ourselves, inasmuch as the Odontological Society has the advantage for, the first time of possessing a home of its own, unconnected with any school of dentistry, but under the *ægis* of the Royal Medical and Chirurgical Society, and associated so far as its habitat is concerned with other learned bodies. At such a moment as this we should be lacking in generous feeling if we did not record our appreciation of the services rendered to our Society by the Rehousing Committee and the Council in securing these premises, and I am sure I may express to those gentlemen on behalf of the members generally our united thanks for the trouble they have taken, and the arrangements being made for our comfort and convenience. As you all know we have leased to us, with the power to sublet, for a period of thirty-five years (dating from September 29, 1901), the third floor of 20, Hanover Square, together with the use, at stated times, of the Theatre and Council Chamber.

Our new rental, with exemption from parochial and local rates, will be £270 per annum, an increase of £120 upon that we formerly paid, but to meet the increase in expenditure the Council with prudent forethought have for many years past been setting aside some capital, since they foresaw that sooner or later a new home must be found.

In seeking adequate accommodation, our chief difficulty has been the securing of space for our Museum. This you will be gratified to learn will soon become well housed, and the indefatigable Curator is doing his best to make it dentally what the Hunterian Collection is surgically—second to none in the world. The Library likewise will be suitably provided

for, and the painstaking Librarian will doubtless see that all that is best in dental literature will be provided for our perusal and reference.

Well, gentlemen, I think you will agree with me that the new era and session begin for us under favourable auspices, and it may fairly be hoped that the list of our members will be materially increased. I shall be grateful if members will take seriously to heart this pious wish, and do what in them lies to strengthen our roll of members. I would that every qualified dentist felt it to be a duty to himself and the profession to join this Society, and to regard the prestige it gives as second only in importance to his legal qualification. Believe me, such a united body is necessary in order to consolidate our profession, and give it both a scientific and social value which would be of sterling utility to dentistry.

The many able addresses given from this chair in a long succession of years have exhausted almost every field of review that can be deemed by you worthy of attention. I can come but as the gleaner of a few grains after the harvest of these busy reapers ; but yet I would like to lay before you, in a brief manner, some points that may be of interest.

One's thoughts naturally turn to a contemplation of the future of dentistry—its position as a profession scientifically. The public appreciation of dentistry as a profession chiefly depends upon the skill and ability with which its members carry out their numerous operations, difficult and laborious as they are for the most part. The social status of dental surgery is assured by the high general education of its members ; and if quackery and advertisements ceased to degrade us our specialism would soon rank as second to none amongst the liberal professions.

The first consideration of a patient is a practical one, "How far does the dentist benefit me?" Dental surgeons

for many years past have executed gold fillings and crowns in endless variety, with great perfection and skill, and such operations are recognised as every-day practice. Crowns, and bridge-work in selected cases, will undoubtedly continue to be done for many a long year, as their utility to the patient cannot be denied. Large contour and other gold fillings, however, will probably be superseded to some extent by porcelain inlays, for the latter are more artistic in appearance, and they take up less of the time of the operator and patient. To my mind there are few methods of treatment that have so rapidly been improved upon as glass and porcelain inlays, and there seems to be a great future for them in skilful hands.

How, then, may we advance in our art? We shall all welcome new methods of treatment which may arise from time to time, but for the present we must strive after the greater perfection of those conservative operations which we daily employ. We must raise the standard of our work by the elaboration of details, for the perfection of a filling, or crown, in its most minute points, constitutes the real difference between the finished operator and the average man. Many of our failures in practice might be avoided by the employment of greater care.

I would that an Endowed Research Scholarship were founded by this Society at no distant date, for it is imperative that such should exist in every department of science, and particularly in one so modern as that of dentistry.

This Society has, perhaps, never engaged in more laudable work than that of encouraging original investigations. There are not many minds capable of undertaking research inquiry, and it is eminently desirable that every encouragement should be given to the patient seeker after scientific truth. The men most fitted for the work are those fresh from the schools, who have distinguished themselves in their hospital

career. These men are capable of bringing to bear upon a subject freshly-trained and unbiassed minds ; they, too, at such an age, are not burdened with the cares and responsibilities of practice, and if encouraged by the hope of adequate reward, some few would probably elect to devote their lives to the science in preference to the practice of dentistry.

Many pathological problems remain unsolved and await investigation. *Pyorrhoea alveolaris*, for instance, which appears to be much more commonly met with than formerly, and about which so much has been written of late, may prove to be a preventable disease and due to specific micro-organisms. The prevention of such a disease suggests much that may be done in educating our patients in the matter of dental hygiene.

The prophylactic treatment of dental caries demands much careful study. The teeth of each successive generation undoubtedly appear to be more prone to its ravages, and how far this deterioration is due to maternal influences, or the food of the individual, or the environment of the teeth, has been by no means determined.

Again, the etiology of erosion is not clearly defined, and the treatment for its prevention or arrest is not satisfactory. The morbid conditions of the tooth pulp likewise are so numerous and various that they alone require exhaustive investigation.

It is unnecessary for me to mention other subjects of inquiry, as all of you are well acquainted with the difficulties met with, and our limited powers in dealing with them. This Society, I am glad to mention, has done something for original research during the past two years by making annual grants, and although no reports have yet been received it is felt that the investigations which are being pursued may prove of great value, and I need hardly say the results are awaited with considerable interest.

The education of the future dentist is of paramount importance, and personally I welcome the increased severity of the Preliminary Arts Examination now demanded by the General Medical Council. I think the time is not far distant when that body will demand for the registration of medical and dental students the matriculation of the London University or its equivalent. The Royal College of Surgeons of England—from which I trust the profession will never be disassociated—requires a yet higher standard of practical and theoretical examination from its dental candidates, and attendances upon lectures on bacteriology, dental histology, and materia medica will in the future be compulsory.

When we hear it said that the scope of the college examination in dental mechanics is too limited, I am inclined to think that the fault really lies in accepting a two years' pupilage; the third year, as you know, is allowed to run concurrently with hospital work, and mechanics is too often crowded out by the latter. If the profession will proclaim with one voice that a three years' *bona fide* pupilage is a necessity—and the time certainly has come for such a pronouncement—then the examination standard in mechanics for the average student can be raised. Personally, I am much in favour of such a course, for I contend that the early and full training of the hands in mechanics is the best possible means of acquiring the manual dexterity necessary for the operative part of our work.

It has been suggested that comparative dental anatomy may possibly be eliminated from the curriculum without much disadvantage. As a teacher I am distinctly of a contrary opinion, and base my argument upon the following grounds.

Dentistry is a narrow specialism, and so narrow is the field that we must guard against its limitations by a liberal education. An education liberal in its inclusion of all subjects

having a bearing [upon dentistry, *e.g.*, chemistry, dental embryology and histology, bacteriology, pathology, and comparative dental anatomy.

It is impossible to study man's dentition apart from that of other animals, and more particularly those included under the order Primates—apes, monkeys and lemurs. These animals have close affinities with the lower orders of mammals, and so by easy downward gradation the dentition of the higher vertebrates—usually heterodont and diphyodont—can be seen to be evolved from the simpler forms of reptiles and fishes, usually homodont and polyphyodont.

Again, the dentist should be an expert odontologist, and the terms should be synonymous. The importance of odontology as a study can be gauged by the great work done by Hunter, Darwin, Owen, Huxley, Flower, Tomes, and many others. I do not for a moment wish [to contend that it is necessary to burden the memory with endless dental formulæ; that would be as unprofitable as for the schoolboy to remember the populations of the smaller towns, but I do maintain that every dentist should be able to recognise by their jaws the different orders of vertebrates, and to name their dental characteristics.

My last argument is that a study of natural history is oftentimes fostered by a knowledge of the dentition of animals, and their classification largely depends upon the teeth.

Pardon me for the digression in pleading for the study of comparative dental anatomy, for the subject has always given me much interest, and I urge it not at the expense of, but as an elucidation in the study of the human teeth, since the latter should be known as thoroughly as possible, developmentally and histologically.

The University of London, which exists under its new charter as a teaching as well as an examining body, has now

affiliated to it the metropolitan dental schools. A Board of Dental Studies in connection with this University has been appointed, and although no progress has so far been reported, it is to be hoped that dental degrees will be founded, it may be as an honours examination for the Dental Licentiate. I cannot but think the recognition of dentistry by this highly scientific body must ennoble the profession, and tend to attract some of the best intellects who have an aptitude for mechanics. It may, too, be the means of leading some students to take medical and surgical degrees, but I trust they will be dentists first and medical men later. The Birmingham University has already instituted and conferred degrees in dentistry—the first granted in the United Kingdom in connection with our specialty.

I should like to take this opportunity of saying a few words about the necessity for greater aseptic precautions in our every-day practice. In my opinion all our instruments should, if possible, consist solely of steel, and should be boiled as a routine practice before use. The vase alone with its antiseptic fluid is not an up-to-date method, and should be supplemented in every dental surgery by a steriliser. By the way, the sterilising vase seems too often to be used for other purposes than that for which it is intended, and is frequently merely the receptacle for flowers or cotton wool!

Can we not too do something to make our consulting rooms aseptic? Our consulting room is becoming too much like a modern drawing-room with its Turkey carpet, curtains, upholstered operation and lounge chairs, and wooden cabinets. How different is the modern hospital operation room, with its tiled or glass floor, glass operation table, glass air-tight instrument cases, sterilisers, washing basins with numerous antiseptic solutions always ready at hand, and absence of carpets and upholsteries. Similar scrupulously clean surroundings might well be adopted by us, and more especially

in the room where the extration of teeth is performed. I believe the pain and discomfort of a swollen face, sloughing socket, localised periostitis, or slight necrosis of the alveolar process, which sometimes follow this operation, usually ascribed to traumatic causes, may be prevented to a large extent by strict aseptic precautions on the part of the dentist himself, in his instruments, and the surroundings of his room. It may be the dentist of the future will wear at his work a glazed mackintosh surtout, like the operating surgeon, or at any rate adopt the white holland coat recently introduced by some practitioners.

Whilst pondering over this subject I cannot help feeling a moral satisfaction that the surgical cleanliness of the mouth is now more generally aimed at both by the dentist and the patient. We know too well how the standard of health of a patient is lowered by the toxic effects of a septic mouth, and how the alimentary canal and respiratory tract become infected by diseased teeth. An object lesson presented itself to me some years ago, when a thin, delicate lady, aged about 40, consulted me about her mouth. She was wearing complete upper and lower dentures, which had been inserted over the roots of all her teeth. The mouth was in a very foul condition, most of the roots being abscessed; I advised their removal, to which she readily assented, but unhappily she fell ill and died from a low form of pneumonia before the work was begun. I consider her death due to the state of her mouth, and it is more than probable that the swallowing of the pus around the roots was the immediate cause of the auto-infection of the lungs.

I am convinced that a septic condition of the mouth, tolerated in ordinary health, may become a source of great danger to the patient during an acute specific illness, such as typhoid fever, ulcerative endocarditis, or pneumonia, and may be an important factor in the issue of the case. It has been

observed that severe abdominal operations, successfully performed, in which the local results are satisfactory, are sometimes followed by indications of blood-poisoning, parotitis, and death. The inflammation and rapid sloughing of the parotid gland are apparently not due to the effects of the operation, but to the condition of the mouth and teeth. It follows, therefore, that the mouth of the patient should be clean, as well as that of the surgeon and the nurse, in order to ensure the best results in operative surgery. Of course many operations are urgently called for, and any delay for putting the patient's teeth in order is out of the question.

However, the fact remains that oral sepsis may profoundly modify general surgical results, just as it often accounts for much puerperal trouble.

In this connection I may mention that for some years past at a large London hospital all the nurses from their probationary period onwards are required to have their teeth regularly inspected, and treated, every six months. They are thus saved as far as possible from dental trouble, and to some extent from risk of infection to themselves or injury to the patients under their charge. I may add parenthetically that under this regulation the general health of the nurses has improved, and incapacity from work on account of diseases of the teeth rarely exists.

I had the honour of attending, as a delegate of this Society, the British Congress on Tuberculosis, held in London in July, 1901.

The papers and discussions tended to emphasise in the lay mind the infective nature of the disease, and its spread was attributed chiefly to the inhalation of the tubercle bacilli contained in the dried sputum of phthisical patients, and from the dust of infected, sunless, ill-ventilated and damp houses.

Heredity and the infection through tuberculous meat and

milk were considered minor evils, even if they had any real existence (Köch). The onset of tuberculosis is too often associated with inflamed and enlarged lymphatic glands for dental surgeons to ignore the possibility of local infection from exposed pulps, and inflammatory conditions of the oral tissues.

The State recognition of dentistry is an indication of the increasing estimation in which our specialty is held by the public, and it was a source of satisfaction to the profession when four dental surgeons, nominated by the British Dental Association, were sent out to the seat of war in South Africa in May, 1901. The Army Medical Department has, rightly we think, taken this important step, and it is to be hoped that dental surgeons will be permanently established as a branch of the Royal Army Medical Corps, while the Navy also demands a thorough system of dental help.

The State takes upon itself many burdens, and dental aid should be given in every government department, including all branches of the civil service, and also in poor-law schools.

The government should require dental certificates from those who enter their service, and dentists should be appointed in the same manner as medical practitioners for all their employés.

In conclusion, gentlemen, I may add that through the energy of the Honorary Secretary to the Society, many interesting contributions and papers have been promised for the forthcoming season, and it is hoped they will lead to profitable and full discussions.

I thank you again most heartily for the honour you have conferred upon me, and I cannot resume my seat without expressing my indebtedness to the meeting for its very kind and patient attention to my brief address.

THE MOVEMENTS OF THE MANDIBLE.

By T. E. CONSTANT, L.R.C.P., M.R.C.S., L.D.S. Eng.

(Continued from page 1070.)

An objection to the foregoing explanation of the mechanism of the mandibular movements may occur to those readers who have not forgotten that they are taught that the external pterygoid muscles acting together protrude the jaw without assistance from other muscles. They will naturally ask, "Why does not depression of the mandible take place when the external pterygoids act without the other muscles?"

The writer's reply is that the external pterygoid muscles protrude the jaw by acting in co-operation with other muscles. When the jaw is protruded the masseter and internal pterygoid muscles can be felt to contract, and are therefore as much protrusor muscles as are the external pterygoids. It is possible that their function may be merely to prevent the depressor tendency of the external pterygoids taking effect; but without their counteracting influence it is certain that the result of the simultaneous contraction of the external pterygoids would be depression of the mandible. The direction of the fibres of the masseter and internal pterygoid muscles suggests that these muscles could also act *directly* as protrusors. It should be noted that John Hunter stated in this connection, "That these muscles (the external pterygoids) act both when the lower jaw is raised and when it is depressed: yet they do not assist either in raising or depressing it." The present writer has adduced his reasons for differing on this latter point.

It is probable that not the least important function of the external pterygoid muscle is the adjustment of the inter-articular fibro-cartilage. We have seen that at least the first two-thirds of the movement of depression is that of rotation—and therefore the path of the condyle must be a curve with the axis of motion for its centre—in other words, a curve with its concavity downwards and backwards. Now the outline of the glenoid cavity and articular eminence is a curve with its concavity upwards and forwards. It follows, therefore, that the external pterygoid muscle must so adjust the inter-articular cartilage throughout the movement of the condyle as to ameliorate the inequalities of outline of the surface over which it passes.

In this manner we can account for the fact that while the first two-thirds of the movement of depression is that of rotation, it becomes more irregular as the extreme of depression is approached; for, as Hunter has pointed out, the cartilage does not accompany the condyle throughout the whole of its forward excursion.

The two factors that determine the backward excursion of the condyle during elevation of the mandible are, 1st, the disposition of the parts forming the articulation; and 2nd, the action of the temporal muscles.

This is so obvious that special comment is unnecessary.

The writer's conclusions may be summarised as follows:—

1st. The movement of the temporo-mandibular joint is a *sliding* movement.

2nd. The axis or centre of motion of the mandible during depression and elevation, in so far as one exists, is at a point vertically beneath the glenoid cavity, and in the same horizontal plane as the occlusal surface of the first upper molar teeth.

3rd. The advancement of the condyle during depression of the mandible is, in part, due to the action of the external

pterygoid; which muscle also adjusts the inter-articular fibro-cartilage in such manner as to render possible the even motion of the mandible.

4. The Masseter and Internal Pterygoid muscles should be classed with the External Pterygoids as protrusor muscles.

A FUSIBLE METAL IN CROWN WORK.

BY J. M. KEEVIL, M.R.C.S., L.R.C.P., L.D.S. ENG.

Until recently the use of fusible metal as a rapid but sure way of working crowns has been very easy in theory but attended with considerable and unexpected difficulties in practice.

I had long come to the conclusion that fusible metal was unreliable, and therefore of no value in cases where die and counterdie were made of the same material.

This objection, however, has been entirely overcome by Christiansens' method in which the gold is pressed on to a fusible metal die through the interposition of a rubber buffer.

As the result of considerable experience with this apparatus, I can confirm the statement that, with its aid, fusible metal affords an efficient as well as rapid means of making dies for "all gold crowns or other small work."

The apparatus at present used is Messrs Ash & Sons' Inlay swager, which is made to serve the double purpose of Inlays and Crowns, but which, excellent as it is for the former, is not sufficiently heavy for the latter, as after use for some time, the rings in which the dies are run expand or stretch under the pressure of even the hand press usually

employed, and then become very difficult to remove from the cylinder, leading to waste of time and temper.

To obviate this, I had made a much heavier piece of apparatus of good steel, in which the rings, although of the same bore, are $\frac{1}{4}$ inch thick at the runs, and are also, together with the plunger somewhat less in depth than Messrs. Ash & Son's, in order to bring the whole within the scope of an ordinary flask press. The rubber buffers are larger in diameter, necessitated by the increased size of cylinder bore and plunger required to take the greater thickness of ring.

With this apparatus I have had unqualified success in the use of fusible metal, and a saving of one-half the time, and a much larger moiety of the trouble of the now, it is to be hoped, antiquated zinc method.

COCAINE POISONING.— Referring to the case of alarming symptoms induced by cocaine used as a local anæsthetic, recorded by Dr. Kenneth Fraser in the *Lancet* of July 20th, 1901, p. 145, a correspondent points out that a somewhat similar case was published in the *Australasian Medical Gazette* of April 20th, 1901. The patient was a healthy woman 30 years of age, who had several stumps of teeth extracted, 30 minims of a 1 per cent. solution of cocaine being injected into the gums without giving much, if any, relief from pain. A fortnight after this event further extractions were required, and the medical man injected "a quarter of a grain of cocain tincture" into the gum where it seemed most tender. After waiting 10 minutes he repeated the dose, the gums being apparently in no way anæsthetised by the quarter of a grain. Within two minutes the patient was in a most alarming state; her colour suggested syncope, her respiration became very rapid and shallow, and her pulse rapid and fluttering. An ounce of compound spirit of ammonia was administered in small doses frequently repeated, and artificial respiration was maintained but it was fully an hour before she ceased to sigh and to complain, having been unconscious most of the time.

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THE GENERAL MEDICAL COUNCIL.

The General Medical Council has held its autumn session. It was not a very long one, and the amount of legislation actually completed was not large. There was one Dental case, that of Mr. Donaldson of Bury St. Edmund's, who had previously been before the Council for advertising himself as R.D.S.R.C.S. Eng., and subsequently as R.D.S.Eng. On Mr. Donaldson giving a pledge that he would not again offend in this manner the proceedings were withdrawn against him. It seems a fitting opportunity for us again to bring to the notice of registered dentists that the letters R.D.S.R.C.S. are a deliberate falsehood, as the Royal College of Surgeons has no diploma bearing the initials R.D.S. The use of the letters R.D.S. without the R.C.S. is also a misleading title, as there is no such diploma, and it is nothing else than a colourable imitation of the L.D.S., which letters are the recognised insignia of a recognised diploma.

The Education Committee presented a second report, which was unanimously adopted after a protest by the Royal Colleges as to any infringement of their liberties. These ancient foundations have no objection to the levelling up of the profession, but they are very jealous of their privileges, and do not brook any dictation from the General Medical Council. We prophesied long since that the Preliminary Art Examination would stop at nothing short of the standard of the London Matriculation, and although the Report does not go

so far as that yet, it is plain that the tendency is in that direction.

Mr. VICTOR HORSLEY was again to the front with his campaign against impersonation. It is most important that the impersonation of a student at an examination—as was recently the case in Ireland—or the impersonation of a deceased or retired practitioner, should be made difficult to execute and made severely punishable on detection. There was a good deal of contentious matter, although the feeling of the Council was in favour of the scheme, so its further consideration was postponed till next session.

A list of scientific institutions, not connected with Universities or Medical Schools, was tabulated and accepted as proper places for students to commence their studies in Chemistry, Physics and Biology. Other scientific institutions other than those named will be able to have their names added to the list if they are proved to be up to the proper standard. We see no reason why the Dental Schools should not train dental students in these obligatory subjects instead of the students being obliged to go to Technical Colleges and the like.

An interesting little incident closed the session, viz., the loan of £600 by the Dental Fund to the English Branch Council. One good turn deserves another, as the English Branch had formerly lent the Dental Fund £1,100 when the Fund was started. We hope that the Finances of the Council may be soon in a sounder state, and that the meetings of the Council may be more businesslike, and as a consequence less prolonged and less expensive.

TRADES BAD FOR THE TEETH.—Quicksilver miners follow the most unhealthy trade in the world. The fumes of the mercury produce constant salivation, and the system becomes permeated with the metal; the teeth of the unfortunate men drop out, they lose their appetite, become emaciated, and, as a rule, seldom live longer than two years. Chloride of lime, employed by bleachers, frequently destroys the enamel and

dentine of the teeth. But phosphorus, used so largely in the manufacture of lucifer matches, affects a very large number of persons, women, girls and children greatly preponderating. People who work in soda factories are affected by the teeth becoming soft and translucent ; they break off close to the gums. Dr. Hesse, of Leipsic, states that bakers are liable to suffer from carious teeth on account of the flour entering the mouth during work, collecting on and around the teeth, where it decomposes and generates an acid destructive to the dentine.

THE TEETH OF SOLDIERS.—The *Morning Post* says at the present time, as everybody knows, every effort is being made to obtain recruits for the Army, and it is not surprising, therefore, to find that a restriction is about to be removed, the existence of which has always been considered even by many officers of the Army Medical Department as quite unnecessary. In the Navy particular attention has always been paid to the condition of the teeth of recruits ; but in the Navy there are obviously reasons—in the shape of hard biscuit, etc.,—which call for this special care. But in the Army it is different. The days of biting off the end of a cartridge are past, and the food supplied to the modern British soldier, even on board a transport, entails no more strain on a set of false teeth than does the ordinary food of a civilian. Yet up to the present time it has always been the rule to reject any recruit offering himself for enlistment who was in possession of a set of false teeth, however strong and healthy he might be in all other respects. Now, however, all this is to be altered, and the authorities are prepared to go so far in the opposite direction that it is said that in the case of a soldier already enlisted whose teeth become so bad that he would formerly have been discharged as medically unfit on that score alone, they will, instead of discharging him, provide him with a set of false teeth and allow him to complete his period of service with the colours.

PREPARATIONS OF CAVITIES IN THE BICUSPIDS
AND MOLARS.

By DR. W. A. SUMMERLIN.

WE find from the model that I present to you that the bicuspid has been prepared with a small cavity on the anterior proximate surface—the cavity has been expended through the centre of the entire surface, making the cavity much easier of access and also leaves a smooth surface to fill. I have not left any dark spots on the masticating surface at all to have future decay, I find that if the decay has gone beyond the gingival margin, that it is so sensitive and difficult that often they cannot be prepared and filled with gold without much labour and time; and from a practical standpoint, I often build up with alloy and in the future will cut away the portion that I cannot fill with gold, and cut away enough to give a slight undercut all around the entire cavity. You can, by using some of the plastic gold, fill them much easier and with less time than you can with the ordinary gold foil—by its use you have no retaining pits at all. I find that gold will last longer in the bicuspid; in fact, it should be used if it can be. Of course, you have to take into consideration the circumstances of the patients. If the teeth are not too frail prepare them as I have shown you and you will not have that recurrence of decay at the gingival margins of the cavity. I find that the recurrence of decay is caused by filling not being protected as it should be and also the patients have not kept their mouths clean at all, another cause is that the dark fissures have been left, which will sooner or later have a recurrence of decay. Now, in the filling as it should be, fill about two-thirds full of the plastic gold, and then the remainder should be filled with cohesive foil, which will unite with the plastic gold. It should be condensed, in small pieces, with hand pressure, until the entire bottom of the cavity is covered, then it can be condensed with whatever you wish, as the masticating surface should be condensed thoroughly. We have so many writers of late on the subject of recurrence of decay that I will attempt to say only a few words on the subject: That from my experience I can not, at all times, practice what our friend, Dr. Black, has laid down for us as a system of preparations of cavities, and that has been followed by others, which, theoretically speaking, are good ideas; but find circumstances of nearly every case different, so that I can

not confine myself to any one view, but have to use the best judgment to fit the case in hand.

In preparing the molars I do not leave any fissures that are dark. I cut them out ; so you have the entire surface to make a smooth filling. If the cavity of the tooth, that I present to you is decayed on the proximal surface and also on the masticating, I connect them together and cut out the fissures that are dark and fill them in the manner that I do with the bicuspid, I make slight undercuts and make the filling nearly full with the plastic gold, then finish with the cohesive gold. It is our duty to advise our patients, and at all times advocate the highest and most ethical practice and should fill all the bicuspid that can be practical with gold. It is much better, it is more durable, it is most ethical. Do not advocate that cheap idea of a slip shodden, sloven way that so many quacks and cheap men advocate. It is time for us to put on the brakes and advise the patients conscientiously and sooner or later we can see the good results.

Now, as to the proximate filling in the bicuspid, I would say that it requires judgment as to the size that we should extend the filling, considering the age of the patient. At fifteen years the gums fill up all the space ; at forty years they have receded and often difficult to separate and fill down to the gum septum, as we have seen described by Dr. Black and others. I find, in certain cases, that nothing short of a combination filling will do, as it is all we can do. It requires as much skill as one with all gold, with less pain to the patient. I find from experience that patients present themselves who are nervous, that we cannot do as we wish to, and can only fill cavities temporarily, as in the cleansing space we have to take into consideration the position of the teeth and leave them when finished as nearly clean as we can. Often they are in such a malposition that self-cleansing is nearly impossible, even in sound teeth. We could adopt no rules, having so many cases of the abnormal type, that we are often confused and without any special guide, except to use only our judgment of the cases in hand. If cavities extend under the margins of the gums they are usually very sensitive, and that is usually the cause of the failures of this class of work. And we have inflammation of the periosteum that continues for some time. Strips have been used very successfully. If we use cloth we usually cut away that contour that we have built up and leave too much space and not have that clean surface of cleanliness which we should have in finished work.

Dental News.

NATIONAL DENTAL HOSPITAL AND COLLEGE.

The ANNUAL DINNER of Past and Present Students was held at the Holborn Restaurant on Friday, Nov. 25th, S. J. Hutchinson, Esq., M.R.C.S., L.D.S., in the chair. Amongst those present were Messrs. Morton & male, Howard Mummary, F. Canton, W. B. Paterson, A. S. Underwood, Drs. Allchin Risien Russell, Dudley Buxton, etc., etc.

THE CHAIRMAN in proposing the toast of "THE KING," said: "Gentlemen, It is a very easy matter at a gathering of this kind to propose the Toast of "THE KING," because at the present time it especially commends itself to all members of the Medical and Dental profession. His Majesty has within the last few days expressed his pleasure that the Fund started by him some few years ago shall now be known as "King Edward's Hospital Fund for London." He has further stated his desire that the Coronation Gift from his loyal subjects shall take the form of a contribution to that Fund. He has also shown his interest in Dental Surgery by conferring the designation of "Royal" upon our sister institution in Leicester Square. I therefore heartily commend every loyal Britain present to join with me in drinking to the health of his Majesty King Edward."

THE TOAST was received in an enthusiastic manner, the company singing the National Anthem, Madame Pearson rendering the solo parts.

THE CHAIRMAN next proposed the Toast of "Her Majesty the Queen, the Prince and Princess of Wales, and the rest of the Royal Family," saying: "Gentlemen, I think you will all agree with me that I am paying Her Majesty the Queen the very highest compliment when I say that her many gracious acts of benevolence, and her sympathy with all forms of human suffering, and her readiness to associate herself with the work of all charitable institutions established for the relief of the needy poor render her a fitting consort of our King, and worthy of the high position she occupies; and in these qualities she closely resembles our late gracious Queen Victoria. As all of you know, the Prince and Princess of Wales have recently returned from a tour through the vast dominions of this great Empire; and the hearty reception which was accorded them on their return clearly shows that they have won the esteem and regard of their fellow-countrymen, and how highly satisfactory that tour has been."

THE TOAST was heartily acclaimed.

THE CHAIRMAN; "The toast which I now have the honour to propose, viz., that of "The National Dental Hospital and College" is one with which I would couple the name of our Dean, Mr. Sidney Spokes. (Applause). I have, first of all, to thank the Council of the Dental Hospital and College for the high compliment they have paid me in asking me to become honorary Consulting Surgeon; and, secondly, for the honour they have done me in requesting me to take the chair

to-night. With regard to the first appointment, I hope the duties which fall to the post which I have the honour to fill may be as pleasant as the duty I have to fulfil this evening in presiding over so large a gathering of past and present students and their friends. On looking around me I see with pleasure the faces of many old friends. This hospital is carrying on a very great and important work, and I have no doubt the measure of its usefulness will be still further increased in the future. (Cheers.) Of course it is a very trite saying, and one which is not sufficiently realised by the public, that the work of the dental hospitals and the dental profession generally, involves, to a very large extent, the responsibility of looking after the health of the population of our Empire. I may appear to be using, perhaps, rather exaggerated language when I say that the future health and strength of our Army will also largely depend upon the care which is bestowed upon the teeth of the population of this country. I want to emphasise a statement I quite recently heard made respecting the South African Constabulary. The recruits for that body have, of course, been medically examined, and I was astounded when I heard that no less than 50 per cent. of those who presented themselves for enrolment were rejected on account of defective teeth. Well, I had the opportunity of asking some one in authority on what estimate the condition of the teeth was calculated, and the information I got was that so long as the masticatory apparatus was sufficiently sound to ensure the proper and adequate grinding of the food, so that the digestion of the latter could be properly performed, the authorities were not particularly critical, and were not too exacting respecting the number of teeth possessed by a candidate for enlistment. These figures are simply appalling, and when we think of the importance of having an army with good teeth how much more is it necessary that those engaged in more peaceful pursuits should have their teeth properly attended to. Well, of course you all know I am only repeating the words of others, which show the interest that is being taken in the subject. The War Office decided to send out four Dental Surgeons to South Africa, and their services proved so useful that six more have been appointed and will be sent out as soon as possible. (Cheers.) We should also congratulate ourselves that this Hospital has been able to provide at very short notice Dental Surgeons who will be able to render most valuable services. We may also feel very well pleased in another way. There is not the slightest doubt that the sudden demand made by this War upon the services of the Dental profession will, in a very few years, lead to the formation of properly organised Dental departments in both the Army and Navy medical services. I am all the more proud because I know that so much benefit will arise from it. With regard to the School, I am very pleased to hear that the students of the National Dental Hospital and College are maintaining its old reputation of securing a very high percentage of passes at the College of Surgeons. (Cheers.) I should like to mention the results of this year's examinations, which are distinctly encouraging, and a source of great satisfaction to the Staff of this Hospital. Out of the eleven candidates for the L.D.S. the whole of the candidates passed in the special subjects, whilst only four will have to go up in the General Division in order to get their diplomas. (Loud cheers.) And in addressing myself to the students, I would earnestly ask them to make every effort to maintain the high tradition of their school, and realise that, however good their teachers may be much depends upon themselves to gain the benefit that the authorities of the Hospital are anxious they should receive. Very much depends upon the students' personal efforts. The tendency of young men nowadays is that they want everything done for them. I do not say it of those present, but I have noticed it in many instances.

I am quite sure that the students of the present day enjoy enormous advantages which they would do well to fully realise. I do not think, gentlemen, that I need detain you further, so I will now ask you to drink with enthusiasm to the health and prosperity of the National Dental Hospital and College, coupled with the name of Mr. Spokes, the Dean. (Prolonged applause.)

The DEAN: Mr. Bhairman and Gentlemen; it is once again my duty to say a few words in response to the toast of the National Dental Hospital and College. In the first place I will thank our Chairman for coming here to-night and for occupying a position which has made it possible for him to say what he has. With regard to the Hospital, for which I will say a few words, a member of the House Committee present could perhaps have more suitably responded to this Toast. As regards Finance, it must be most agreeable to my colleagues to know that the Hospital is in a most flourishing condition, although we shall finish this year slightly in debt—(a laugh)—well, I mean to say that hospitals must be always a little in debt in order to be able to interest charitable people. We do not propose to be extravagant, but we do intend to have everything necessary in order to enable us to pay due regard to the needs of the suffering poor. With regard to the School; gentlemen, our school is not one of the largest schools, but I do not think anything the worse of it for that. We have good accommodation—every necessary accommodation—in our comparatively new building, and there is now every opportunity provided for the students to do good work—and I must say that they do it. (Cheers.) The School is conducted on proper lines. (Hear, hear.) Whilst the schools in this country insist on the students becoming expert operators, they do not overlook the danger which may arise from too much concentration on one particular point—we aim rather at encouraging the student to exercise his judgment and discretion in applying different methods according as the conditions may present in each particular case. It is said—as it should be—that we are in the habit of going on quietly doing our work honestly and as well as we can, and perhaps leaving other people to talk without saying very much in reply; but perhaps on this occasion one may say that we are anxious that our students shall regard the tooth not altogether as the sole point upon which to fix his observation, but rather to remember that it is only one of the many organs in a complex organism. We are anxious he should go away as a thorough practitioner, not turned out by rule of thumb and acquainted with one particular point, but we want to make him a good all-round man (applause). The College of Surgeons has decided what is the necessary equipment for his future sphere of action and usefulness, and no effort will be spared on our part to enable him to come up to the requirements of the present curriculum, and anything further in reason which may be called for by the authorities that be. (Hear, hear.) The College of Surgeons has demanded certain things in the curriculum, and with every demand we have absolutely complied. (Cheers.) With regard to the subject of Bacteriology, we have fortunately secured the services of Mr. Kenneth Goadby as Bacteriologist—(cheers)—and perhaps I might also say that the laboratory is in course of being fully equipped, and early in the New Year we hope to offer to all the old students who reside within reasonable distance the opportunity to come up and take advantage of a thorough course in Bacteriology, I hope many will desire to put themselves on the same footing with the younger men who are coming on. Now, gentlemen, although there have been changes made in our Staff, I do not intend to trouble you with any exhaustive details, but in receiving and welcoming the coming guest we have also to speed the parting guest. As we receive Mr. Goadby, so with much regret we lose the valuable services and co-operation of Mr. Marcus Davies, who has

been for eighteen years actively associated with the National Dental Hospital—(applause)—and during the whole of that long period he has accomplished an immense amount of thoroughly good and painstaking work—(loud applause)—and therefore it is with great regret that we take leave of our late colleague. Mr. Marcus Davies has devoted a great deal of time to his duties at this hospital, but I am given to understand that another engagement now claims a share of his time. (Cheers.) When a man takes a partner, he usually looks forward to taking things easily, but I understand that Mr. Marcus Davies is not going to devote less but more time to the new sphere of duties he is entering upon. (Cheers.) You will understand what I mean when I say that his partner will be one of the opposite sex. (Laughter.) I am sorry to say that although we may have him with us till Christmas, we must not expect his presence amongst us after that date, except in spirit, which I know will be the case. (Cheers.) Now, as a slight token of the esteem and regard which we all entertain for Mr. Marcus Davies, it gives me very great pleasure to ask him to accept a little offering from his colleagues of the National Dental Hospital and College in the shape of a tantalus, a gift which I am not going to present in a tantalising way. (Cheers.) He will find here two keys which will open the lock, and should he ever require it this dispensing cabinet will come in useful. (Laughter.) Gentlemen, I thank you for your reception of the Toast; in drinking to the "National Dental Hospital and College" you are drinking to the success and prosperity of your own Alma Mater. (Applause.)

Mr. MARCUS DAVIES: Mr. Chairman and gentlemen, although my name is not down in connection with the last toast, I hope you will excuse me on this occasion getting up to thank my colleagues for this very, very handsome present, and also Mr. Spokes for the very kind words he has spoken about me. It is very kind of you to give me this tantalus. I have been on the Staff of the Hospital eighteen years, and I must say that during the whole of that time I have received nothing but kindness and courtesy from every member of the Staff, and therefore it is with very deep feelings that I sever my intimate connection with them, and I sincerely hope that on all such occasions as these we shall meet very often. (Prolonged applause.)

Dr. NOBLE: Mr. Chairman and gentleman, it is with no small degree of pleasure that I rise to propose the toast of "The Past and Present Students of the National Dental Hospital and College." It has fallen to my happy lot to propose this important toast for the first time this new Century at this, our first Annual Dinner of the century. Those students who we call past belong to an age which can boast of much in the way of dental progress, but which has also seen a lot of dental quackery. But dental science has now been elevated to the position of one of the highest branches of the Medical profession. (Cheers.) I trust I may say, without undue exaggeration, that many of our past students have done their full share in elevating and maintaining this very high standard of excellence. It has been my great pleasure to make the acquaintance of many of the past students, and these gentlemen have worked hard, but of course there was a certain point beyond which they could possibly go; they were like a steam engine, capable of producing an enormous horse power, but they were powerless to go one thousandth part of an inch beyond that. They have had laborious work to do, and they have done it well. (Cheers.) Some are gone, but many are with us still, and are ornaments to the profession and a source of encouragement to their younger brethren, who look up to them with admiration for their skill—(cheers)—and I wish them prosperity, happiness, health, and honour. (Renewed cheers.) The present students are deserving of an enthusiastic toast, and I know they will not fall out with me for honouring their predecessors. (Cheers.) The present students may be

regarded as being at the foot of the ladder at present, whilst the past students have succeeded in reaching what I may term the highest pinnacle of dental fame. (Cheers.) All, of course, are not destined to meet with the same meed of success, but, in my humble opinion, where there is downright determination and unflagging energy, a large measure of success is almost sure to be achieved. Gentlemen, those who have gone before you have done great things, but you will do greater still. (Cheers.) Some people talk of luck. Well, now, I am not a sailor, and therefore I do not agree with that idea at all. There is no such thing as luck, and I am quite convinced that where there is a solemn resolution to let nothing go amiss, you will not miss fire and will make progress and achieve fame. (Applause.) Gentlemen, I wish you progress and fame; health, wealth, and honour, and I trust the careers of the present Students will continue to maintain the fame of the National Dental Hospital and College. (Cheers.) Gentlemen, I propose the toast of the Past and Present Students coupled with the names of Messrs. Pavitt and Glassington. (Loud applause.)

MR. PAVITT: Mr. Chairman and Gentlemen: The honour of replying for the past students has fallen on my shoulders, and it is with very great pleasure that I am representing those assembled here. I am requested by Mr. Glassington not to deliver a long speech, and in their name I thank you for the cordial reception of the toast. I do not know what I can talk to you about tonight. We appear to be in an atmosphere of reform, and none of us can deny that reforms are needed sometimes. We have heard a good deal lately of the reforms at the War Office. I do not know much of the War Office reforms, but I believe some little time back the Irish Guards were given new hats (laughter)—a kind of a cross between a sailor's hat and a fireman's (renewed laughter). But I am glad to say that a much better reform has recently been made in the way of looking after soldier's teeth. The soldier is not now left to go into camp and try his teeth on hard biscuits and get on as best he can. A new regulation has been introduced affecting the work of the Royal Army Medical Corps, members of which are now required to undergo a dental training by going through a proper hospital course. Mr. Hutchinson spoke about the Constabulary—I know for a fact men in the Yeomanry who were sent home solely because of their defective teeth. And we all know the relation of defective teeth to disease. I expect hundreds would never have been sent home if their teeth had been properly attended to before going out. I am glad to see that the General Medical Council is also endeavouring to make a reform in a matter intimately connected with the welfare of the Dental profession, and I am glad to say we have a good representative on the Council. The present Dental Act is not as satisfactory as it might be; something ought to be done to stem the tide of unregistered practitioners, and we look to the General Medical Council to bring about a complete revision of the Act, so that unscrupulous and unregistered men may not be able to fleece the public under the guise of advertising Companies. We want an Act which will contain no loopholes by which it may be evaded and leave no pitfalls for the unprotected public. (Cheers.)

MR. J. P. GLASSINGTON: Mr. Chairman and Gentlemen, on behalf of the present students of the National Dental Hospital and College beg to thank you for the kind way in which this toast has been proposed and received. I think the noble army of present students will do the best to satisfy the Examiners of the Royal College of Surgeons when their time comes for examination, (cheers), I know if I do not I shall get my father on my track (laughter). The past students have always done well, and I hope the present will follow in their footsteps. (Cheers.)

MR. C. W. GLASSINGTON: Mr. Chairman and Gentlemen: After the very eloquent address to which you have just listened I have rather

a diffidence in speaking before you; however, I will do my best. The toast which has been placed in my hands is a very pleasant one to propose—that of “THE VISITORS.” Looking around this room, one sees many old faces; one might almost say the same old faces that one has seen in years gone by at these annual gatherings. That, I think is very gratifying to us as hosts, because it proves whenever we have asked the visitors they must have enjoyed themselves or they would not have come again (laughter). Then, gentlemen, one sees one or two fresh faces; well, all I can say on behalf of the Hospital and College is that we welcome all, both old friends and new. I well remember some years ago that the gentlemen who proposed this toast began by mentioning the names of those gentlemen who sat at the top table—but he only got as far as three or four names when he found that time would not allow him to mention all—and there were many others. (laughter). Well, gentlemen, that man was disliked by those many others for ever after. (renewed laughter). I do not wish to be disliked (laughter) but I cannot refrain from mentioning three names. As they say, ladies first, I will mention Madame Pearson, although not a guest at the table, the wife of a friend of mine, Dr. Pearson, who is unable to be present. Then our Chairman—Mr. Hutchinson—I must not say anything about him or else I shall cut Mr. Rushton out of his part. Major Woods who will respond to the toast is a comparative stranger amongst us. As you know he has recently been elected Mayor of Chelsea, and is successor of the Earl Cadogan, the Lord Lieutenant of Ireland—I do not mean that Major Woods is Lord Lieutenant of Ireland. (Laughter). Some years ago Major Woods had no idea of becoming Mayor of Chelsea, but I hope some day to see him Member of Parliament (cheers) there is no reason why he should not be, and I am quite sure, gentlemen, if he is elected to that position he will be one of those who will do his best to promote the interests of the Dental profession. (Cheers).

MAJOR WOODS [who met with a very cordial reception addressed the company as follows: Mr. Chairman, and Gentlemen I thank you very heartily for the kind way in which you have received the toast of “THE VISITORS,” and it affords me very great pleasure to respond on their behalf. I was very glad to come here on the invitation of your Dean and I have enjoyed this excellent dinner; I am sure I am very glad to have this opportunity of expressing my gratitude for the kind words you have used respecting myself and others. Mr. Glassington has kindly alluded to the public position which I now hold, and expressed the hope that some day I may be returned as a member of Parliament. I can only say that I do not know at present when that may be, but I will pledge myself to you, gentlemen, that when I go to Parliament I will support any Act which has for its object the furthering of the interests of the Dental profession, and which will adequately protect both Dental practitioners and the general public against outside quacks. I do not know how long it will be before that time arrives. Again I thank you very much for the kind way in which you have all received the toast of “THE VISITORS.”

MR. RUSHTON: Gentlemen, I must first express my gratitude to Mr. Glassington for not having taken away my part from me. It is with very great pleasure that I propose the toast of “OUR CHAIRMAN.” My first acquaintance with Mr. Hutchinson was made when he appeared as Examiner, and I as Examinee. As these things generally are, the encounter was rather of a one-sided nature, (laughter) he delivering a frontal attack which I repelled by bringing up all my reserve forces, (renewed laughter) just then the bell rang and I had to gather up all my forces to resist a further attack. (Laughter.) He received a check, an honourable peace was concluded, and I received after due time a diploma which ended matters quite pleasantly. (Cheers). Well, I may have

viewed Mr. Hutchinson as an enemy then, but I have since regarded him and found him a true and staunch friend (cheers) in my profession (renewed cheers) and especially in connection with this hospital. Mr. Hutchinson is one of the men the profession may be justly proud of. (Cheers). There are two societies, the Odontological Society of Great Britain, and the Dental Association, both composed of members of the Dental profession. In both of these societies Mr. Hutchinson has played a leading part, and in that way has done much to raise the status of the Dental profession. He has ascended the ladder and reached the highest pinnacle of his profession, and his example should be an incentive to all of us here present this evening, and I hope we shall have him present with us at many another Annual Dinner. Mr. Hutchinson, when he was first connected with the old Hospital, used often to be there waiting for the patients when they were not so numerous as they are now. Mr. Hutchinson was there before the doors opened. He was not exactly a child then, but still a young man evidently at that age, and he formed certain ideas in his own mind which he followed up, and if his example is followed by the young men of our day, it must sooner or later lead to distinction, it has been fulfilled in his case. But I wish especially this evening to call attention to another aspect: Mr Hutchinson, works very hard, yet he has managed to become Consulting Dental Surgeon to our Hospital, and we are extremely glad that he has accepted the post. I am sure you will all agree with me that as our Chairman to-night, he leaves nothing to be desired. (Cheers). I daresay some of you have seen the impersonation by Sir Henry Irving of Corporal Brewster at the battle of Waterloo, when a volunteer was called for to bring up ammunition to the Guards, Corporal Gregory Brewster volunteers and brings up powder to the Guards. The Duke calls him forward and says "The regiment is proud of you." The corporal says in reply, "And I am proud of the Regiment." Well, gentlemen, I think that the Dental regiment is proud of its chairman. (Cheers). There are many of us here to-night, and I think it devolves upon us to extend him a very hearty welcome accompanied with musical honours. Long life, and good health to our Chairman, Mr. Hutchinson. (Loud and prolonged cheering.)

The toast was drunk with great enthusiasm, accompanied by musical honours and "three times three," at the conclusion of which one of the company called for a Dental Hospital "whisper," which was given in a right lusty manner.

THE CHAIRMAN in replying to the toast of his health said: Gentlemen, I have to thank you all most sincerely for the kind reception which you have given to Mr. Rushton's speech, and I want to thank him for the sympathetic way in which he has given expression to your sentiments respecting myself. Although I have attended a good many public dinners, I cannot remember an occasion when the health of the Chairman has been proposed in more graceful, or sympathetic terms. I feel deeply conscious of Mr. Rushton's kindness. I only hope my presence here enables you all to realise the burden of pride which I feel in being placed in such an honourable position. The student who sets forth on his career determined to do his very best is certain to meet with his reward. The kind expressions which you and others have used, respecting myself, are to me a very substantial and very honorable reward. My regret to-night is that I fear that I have been unable to do justice to the position in which you have been good enough to place me. The Chairman has an opportunity which is not possessed by any other speaker, that of talking back. Major Woods has said, and has very kindly given us his pledge, that when he goes into Parliament he will do everything in his power to support and advance the interests of the Dental profession. We want dental surgery, and every branch of the

Medical profession which is intended to educate and fit the student for the important duties which he will have to fulfil, to be duly protected by the state. And I wish to say that our object is definite legislation which will protect competent and practical men against the incompetent, and that will enable the public to determine who are the men that have been carefully trained and educated. We want it rendered possible for the public to know that they are securing the services of men of real ability. That is the sort of protection that we want, and I and my friends will call upon Major Woods when he takes his place in Parliament, to obtain for us. In conclusion I should just like to express our thanks to the lady and gentleman who have contributed so much to the lighter portion of the festivities of this delightful evening. (Prolonged applause.)

The speeches were interspersed with an excellent selection of vocal and instrumental music, including the humorous song entitled "The Dentist of Bray," which afforded considerable pleasure and amusement to all assembled.

BIRMINGHAM DENTAL STUDENTS' SOCIETY

The tenth Annual Dinner of the Birmingham Dental Students' Society was held in the Grand Hotel, Birmingham, on Friday, Nov. 29, the President, Mr. H. Percy Joscelyne, presiding; about 35 members and friends being present, including several of the leading specialists of the city. After the toast of the "King" had been duly honoured, that of the Society was proposed by Mr. W. F. Haslam, who in a felicitous and humorous speech gave the Society a good idea, *viz.*, that mistakes as well as successes be brought before the meeting, for as much, if not more, is learnt from them. He coupled with this toast the name of the Hon. Secretaries Mr. F. W. Broderick and Mr. K. H. Astbury. In acknowledging the toast, Mr. Broderick spoke of the importance of the Society, which stands second to none in the University.

The Birmingham University and Dental School was proposed by Mr. Albert Lucas, who attributed to dental students a degree of earnestness which was hard to beat. In reply, Mr. Humphreys dwelt on the birth of the University and the fine Dental Museum, and acknowledged, with pleasure, some handsome donations from Messrs. Donagan and Bonater. Mr. J. D. Whittles, in reply, related some humorous incidents occurring in the last examination of the College of Surgeons.

The "President," proposed by Dr. McCardie, was drunk with enthusiasm and suitably acknowledged by Mr. Joscelyne.

The "Visitors," proposed by Mr. Malcolm Knott, was responded to by Dr. Smallwood Savage and Councillor Bowater in brief and humorous speeches.

The "toasts" were interspersed with songs, violin solos and recitations by various members of the Society and friends, and a most pleasant evening was concluded with the singing of "Auld Lang Syne" and the National Anthem.

TEETH EXTRACTION IN WORKHOUSES.

The House Committee of the Bromsgrove Board of Guardians yesterday brought up the question of domestic servants leaving their places of service and entering the house, for the purpose of having their teeth extracted, and they made a recommendation that in a case that had recently been brought under their notice application should be made for payment to the girl's mistress. The Clerk reminded the Board that mistresses were not liable for the medical treatment of their servants, but there being an amount due to the girl for wages the recommendation was adopted.

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Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of NOVEMBER, 1901.

Number of Patients attended	1198
Number of Extractions	534
Number of Extractions under Anæsthetics	313
Gold Stoppings	214
Other Stoppings	251
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	334
Gold and Porcelain Crowns	10
Inlays	3
Total	1668

W. WRIGHT, L.D.S. Eng.,

H. HOPKINSON, L.D.S. Eng., *House Dental Surgeons.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
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It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.

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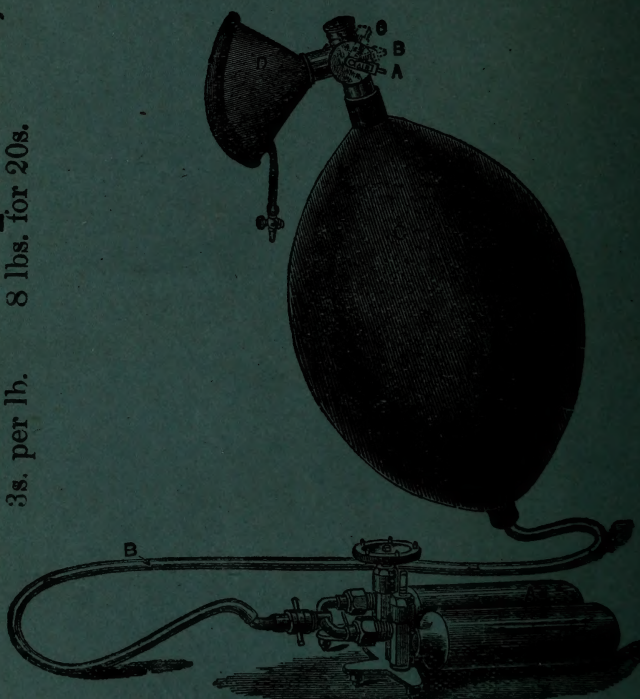
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